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Milla Laisi, Tiina Poikolainen

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New insights via a customer satisfaction survey and expert interviews

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Keywords: Commuter transport, railway market deregulation, long-distance transport, railway undertaking, passenger rail transport

Summary

The increase in population has created challenges to city planning worldwide. Suburbs have become more common living areas, and the distance from city centres has increased. This has brought challenges to passenger transport, which is noted as one of the most vital functions. Special attention has been paid to commuter rail transport, which is stated as an environmentally friendly transport mode. Although passenger rail transport is not as widely deregulated as freight transport, markets are confronting changes. At the beginning of year 2010 international passenger transport was opened for competition. Although this did not concern the national transportation, some countries have proceeded even further, and have partly or totally deregulated the national passenger rail transport.

This research had two main objectives. It examined the progression of deregulation in three target countries and evaluated how experts and passengers have confronted the changes. Secondly, the aim was to clarify what kind of social consequences the deregulation has unfolded, concentrating also on passengers' viewpoints. The study's empirical section was conducted in two parts. Firstly, a passenger satisfaction survey was performed in Stockholm, Tallinn and Copenhagen. In the second part empirical data was gathered by interviewing Swedish, Estonian and Danish experts by using a semi-structured theme-interview. The research provided novel information by combining the standpoints of experts and passengers; the topic has been studied previously by concentrating on either experts or passengers.

it can be stated that deregulation has proceeded dissimilarly in the target countries, which has impinged on the markets. The most significant divergences were noted in education, the ownership structures of the networks and the level of governmental support. Furthermore, the Swedish and Danish markets were considered interesting, whereas the Estonian market was noted too small for competition. However, some similarities were also unfolded. The unions' attitude towards deregulation is mainly negative, partly due to the decreased amount of workforce in the railway industry. Locomotive drivers' increased salary level was described as a positive factor. In order to increase the utilization of passenger rail transport, special attention should be paid to ticket prices, punctuality and itineraries.

Milla Laisi ja Tiina Poikolainen: Markkinoiden vapautumisen eteneminen Pohjois-Euroopan henkilöjunaliikenteessä – uusia näkökohtia asiakastyytyväisyystutkimuksen ja asiantuntijahaastattelujen pohjalta. Liikennevirasto, liikenteenhallinta. Helsinki 2011. Liikenneviraston tutkimuksia ja selvityksiä 15/2011. 112 sivua ja 30 liitettä. ISSN-L 1798-6656, ISSN 1798-6656, ISBN 978-952-255-647-9, ISSN 1798-6664 (pdf), ISBN 978-952-255-648-6 (pdf).

Avainsanat: Lähiliikenne, rautatiemarkkinoiden vapautuminen, kaukoliikenne, rautatieoperaattori, henkilöjunaliikenne

Tiivistelmä

Kasvava väkiluku on aiheuttanut maailmanlaajuisesti haasteita kaupunkisuunnittelulle. Asuminen lähiöissä on yleistynyt, ja samanaikaisesti etäisyys kaupunkien keskustoihin on kasvanut. Tämä on aiheuttanut haasteita eritoten julkiselle liikenteelle. Raideliikenteen kasvattaessa suosiotaan on alettu kiinnittää erityistä huomiota lähijunaliikenteeseen, joka on todettu ympäristöystävälliseksi kuljetusmuodoksi. Vaikkakin henkilöjunaliikenne ei ole yhtä laajasti vapautettua kilpailulle kuin rahtiliikenne, rautatiemarkkinat ovat muutoksessa. Vuoden 2010 alusta alkaen rajat ylittävä liikenne vapautettiin kilpailulle. Vaikkei tämä koskenut maiden sisäistä rautatiemarkkinaa, jotkut maat ovat jo vapauttaneet sisäisen henkilöjunaliikenteen joko osittain tai kokonaan kilpailulle.

Tällä tutkimuksella oli kaksi päätavoitetta. Tarkoituksena oli tutkia rautatiemarkkinoiden vapautumisen etenemistä kolmessa kohdemaassa sekä tarkastella miten aiheutuneet muutokset on otettu vastaan niin toimijoiden kuin matkustajienkin keskuudessa. Toisena tavoitteena oli selvittää rautatiemarkkinoiden vapauttamisen aiheuttamia yhteiskunnallisia vaikutuksia. Tutkimuksen empiirinen osuus tehtiin kahdessa osassa. Ensimmäinen osa keskittyi matkustajien asiakastyytyväisyyteen Tukholmassa, Tallinnassa sekä Kööpenhaminassa. Toinen osa toteutettiin kvalitatiivisena tapaustutkimuksena, ja siinä haastateltiin ruotsalaisia, virolaisia sekä tanskalaisia asiantuntijoita käyttäen puoli-strukturoitua teemahaastattelua. Tutkimuksen myötä saatiin uutta tietoa yhdistämällä eri asiantuntijoiden sekä matkustajien näkökannat; aihetta on aiemmin lähestytty pitämällä nämä kaksi vastaajaryhmää erillään.

Tutkimuksessa tehtyjen havaintojen mukaan kohdemaiden eri tahtiin edennyt henkilöliikenteen vapautuminen näkyy markkinoissa. Merkittävimmät eroavaisuudet huomattiin koulutuksen järjestämisessä, rataverkon omistussuhteissa sekä valtion tuen tasossa. Lisäksi Tanskan ja Ruotsin rautatiemarkkinat koettiin kiinnostavina, kun taas Viron rautatiemarkkinat koetaan liian pieneksi kilpailulle. Tutkimus paljasti myös yhtäläisyyksiä. Liittojen asennoituminen rautatiemarkkinoiden vapautumiseen oli valtaosin negatiivinen, johtuen muun muassa alan työvoiman vähentymisestä. Positiivisena koettiin veturikuskien noussut palkkataso. Jotta useammat matkustajat siirtyisivät käyttämään lähijunaliikennettä, erityistä huomiota pitäisi kiinnittää lippujen hintoihin, junien täsmällisyyteen sekä reitityksiin.

Milla Laisi och Tiina Poikolainen: Avregleringens förlopp på de nordeuropeiska marknaderna för persontågtrafik – nya insikter genom en undersökning av kundtillfredsställelse och expertintervjuer. Trafikverket, trafikledning. Helsingfors 2011. Trafikverkets undersökningar och utredningar 15/2011. 112 sidor och 30 bilagor. ISSN-L 1798-6656, ISSN 1798-6656, ISBN 978-952-255-647-9, ISSN 1798-6664 (pdf), ISBN 978-952-255-648-6 (pdf).

Nyckelord: närtrafik, avreglering av järnvägsmarknaden, fjärrtrafik, järnvägsföretag, persontågtrafik

Sammandrag

Den växande folkmängden utgör en utmaning för stadsplaneringen i hela världen. Det har blivit allt vanligare att bo i förorter och samtidigt har avståndet till städernas centrum ökat. Detta har medfört utmaningar särskilt för kollektivtrafiken. I och med att spårtrafiken har ökat i popularitet har man börjat fästa särskild uppmärksamhet vid närtågstrafiken, som har konstaterats vara ett miljövänligt transportmedel. Fastän avregleringen av persontågtrafiken inte har skett i samma omfattning som godstrafiken, håller järnvägsmarknaderna på att förändras. Sedan början av 2010 har den gränsöverträdande trafiken avreglerats. Även om detta inte gäller ländernas nationella järnvägsmarknad, har en del länder redan antingen helt eller delvis öppnat den nationella persontågtrafiken för konkurrens.

Den här avhandlingen hade två huvudmål. Syftet var att undersöka hur avregleringen av järnvägsmarknaderna har framskridit i tre olika länder samt att granska hur de förändringar som har uppkommit har tagits emot bland såväl aktörerna som passagerarna. Det andra ändamålet vara att ta reda på vilken inverkan avregleringen av järnvägsmarknaderna har på samhället. Avhandlingens empiriska del utfördes i två delar. Den första delen fokuserade på passagerarnas kundtillfredsställelse i Stockholm, Tallinn och Köpenhamn. Den andra delen genomfördes som en kvalitativ fallstudie, i vilken svenska, estniska och danska experter intervjuades i form av en halvstrukturerad temaintervju. I och med denna undersökning erhölls ny information genom att kombinera de olika experternas och passagerarnas synpunkter; tidigare har ämnet behandlats genom att hålla isär dessa två respondentgrupper.

Enligt undersökningsrönen syns det på marknaderna att persontrafiken har avreglerats i olika takt i de olika länderna. De mest märkbara skillnaderna uppenbarades i anordnandet av utbildning, bannätets ägarförhållanden och i nivån på statligt stöd. Dessutom upplevdes järnvägsmarknaderna i Danmark och Sverige som intressanta, medan åter Estlands järnvägsmarknad ansågs vara för liten för konkurrens. Undersökningen visade också en del likheter. Förbunden ställde sig huvudsakligen negativa till avregleringen av järnvägsmarknaderna, bland annat beroende på den minskade arbetskraften inom sektorn. Lokförarnas höjda lönenivå upplevdes som något positivt. För att allt fler passagerare skulle övergå till att använda närtågen, borde särskild uppmärksamhet fästas vid biljettprisen, tågens punktlighet och rutter.

Foreword

This work was accomplished at Lappeenranta University of Technology, Kouvola Research Unit. It was ordered by the Finnish Transport Agency. Research was conducted by Doctoral student, M.Sc. (Econ.) Milla Laisi and trainee, B.Sc. (Tech.) Tiina Poikolainen.

Work was supervised by five experts. The supervisors from the Finnish Transport Agency were Senior Officer Kaisa-Elina Porras and Dr. Miika Mäkitalo. The representatives from the Ministry of Transport were Transport Counsellor Risto Saari and Counsellor Tuomo Suvanto. From the Lappeenranta University of Technology's side, supervisor was Professor Olli-Pekka Hilmola.

The research represents the viewpoints of the researchers and is as such not an official or binding policy of the Finnish Transport Agency.

Helsinki, March 2011

The Finnish Transport Agency
Traffic Management

Table of contents

Abbreviations

EAKL	Eesti Ametiühingute Keskliit, the Estonian Trade Union Confederation
ERAÜ	Eesti Raudteelaste Ametühing, the Railway Employees' Trade Union
EVA	Locomotive Workers' Trade Union
EVKL	Eesti Vedurimeeste Kutseliit, the Estonian Locomotive Workers' Vocational Union
BRS	Baltic Rail Services
CPTA	County Public Transport Authority
DB	Deutsche Bahn, German incumbent
DSB	Danske Statsbaner, Danish incumbent
EEC	the European Economic Community
ER	Eesti Raudtee
ERTMS	European Railway Traffic Management System
ICC	the Interstate Commerce Commission
IFC	International Finance Corporation
JNR	Japanese National Railways
LO	Landorganisationen i Sverige
LPI	Logistics Performance Index
PSO	Public Service Obligation
RFF	Rèseau Ferré de France
RZD	the Russian Railways, Российские железные дороги
SEKO	Facket för Service och Kommunikation
SJ	Statens Järnvägar, Swedish incumbent
SLFF	Swedish Engine Drivers' Union
SNCF	Société Nationale des Chemins de Fer Français, French incumbent
ST	Statstjänstemannaförbundet
TALO	Teenistujate Ametiliitude Keskorganisatsioon, Estonian Employees' Unions' Confederation
TJ	Sacoförbunder Trafik och Järnväg

List of figures

List of tables

1 Introduction

This study examines the passenger rail market in three North European countries, Sweden, Denmark and Estonia. The main focus is on understanding, how the deregulation process has progressed and how the various interest groups have confronted the changes on the market. Furthermore, study represents the viewpoints of passengers, providing interesting information how the grass-root level users see the situation. Finally, research tries to understand the future prospects and main challenges in the three market areas. The research is the Finnish Transport Agency's project related to this topic, and it is executed at Lappeenranta University of Technology's Kouvola Research Unit.

1.1 Background of the research and research gap

The term transportation can be divided into two. Freight transport refers to transporting cargo from place A to place B, whereas passenger transport is used when transporting people. The globalization and increasing number of population have caused demands to both transport aggregates. According to UNCTAD (2011), the population is increasing annually. In 1950 the population was 2.529 billion, but in 2010 it reached 6.909 billion. Based on the estimations, in 2050 there are 9.150 billion people living in the world. Although the growth rate is quickest for example in China and African countries, also European Union is gaining growth. In 1999 total population in EU27 area was 482 million, but in 2010 amount exceeded 501 million (Eurostat, 2011).

In today's society everybody is either directly or indirectly influenced by transport. The accessibility and availability enjoins what kind of journeys we are able to make. Passenger transport is focal environmental and social topic worldwide. (Kingham et al., 2001) The increasing number of inhabitants creates pressure on city planning, as people are moving to suburbs. Public transport is noted to have significant effect on suburbanization. If public transport is insufficiently organized, people are utilizing own cars which creates congestions. The trend is visible: According to Eurostat (2010), the number of cars per 1000 people in EU27 has risen from 334 in 1991 to 473 in 2010. Therefore, special attention should be paid to commuter traffic. (Kingham et al., 2001; Waddell et al., 2007)

Worldwide transport markets have confronted various modifications. One of the most significant changes was transport deregulation, which started in the United States in 1978 when the Airline Deregulation Act was introduced. The Act withdrew price and entry restrictions which had dominated the industry since 1938. (Lehn, 2002; Winston, 1993) The deregulation progression continued in the US in 1980, when railway and road transport were deregulated by Staggers Rail Act and the Motor Carrier Act, respectively (Jahanshahi, 1998; Lafontaine and Malaguzzi, 2005; Winston, 1993). The trend suffused apace worldwide; for example Japanese National Railway (JNR) was privatized in 1987, when the company was divided into six passenger and one freight railway companies (Matsumoto, 2007). In Europe the first deregulation

modulations concerned the railway freight market, and the competition has entered the markets concurrently with development of European Union. The first countries to deregulate the freight transport were the United Kingdom, Sweden and Germany (Jahanshahi, 1998). The situation changed again in the beginning of 2007, when the member countries had to deregulate the railway freight markets due to European Union legislative demands (Mäkitalo, 2007). However, the passenger transport market has been only partly deregulated. 1st January 2010 European Union opened the international transport for competition, but national markets are still under governmental operations. Although the passenger transport side has been approached separately, some countries have proceeded almost identically with freight and passenger transport. In the United Kingdom the objective of making British Rail attractive to private sector was introduced in the Railways Act in 1993. Unprofitable passenger operations were franchised as the intention was to reduce the amount of public subsidies. (Knowles, 1998) Although railway infrastructure company Railtrack tried to operate the market efficiently, due to lack of investments network was in deficient condition and passenger trains accuracy declined from 90 percent to 60 percent. After five years the company was badly in debt and bankrupted in 2001. (Hilmola et al., 2007; Szekely, 2009) Sweden and Germany followed the British actions and deregulated the passenger markets in 1990s (Geyer & Davies, 2000; Jensen & Stelling, 2006).

Especially Sweden has been noted as a good example. The freight transport was deregulated in 1990s and today the market has dozens of operators. Also in the passenger transport sector the situation has been progressing slowly but surely: Although the progress started already in 1988 by the Transport Policy Act, a milestone was attained in 1993 when the state negotiator got a right to use competitive tendering. However, the first company entered the market via tendering only in 1999, due to incumbent's actions to hinder the market entry. In 2007 the incumbent SJ lost its monopoly on night trains and charter trains. The completely free access was confronted on 1st October 2010, as now a railway operator having its registered office in EES or Switzerland is entitled to operate passenger rail services in Swedish network. (Alexandersson & Hulten, 2009; Network Statement, 2011; SJ, 2010)

Danish transport market has proceeded rather steadily in deregulating the passenger market. Although the market is not totally deregulated, some private operators have entered the market via certain arrangements. Five of the companies have longer experience, due to the fact they are private operators owning also the network. These companies are located around Denmark and typically the operation radius is rather small. Additionally, two companies have entered the market via tendering processes. The first tender was out in 2002 and operations started in 2003; second one was open for bidding in 2008 and operations started in 2009. Both cases confronted some challenges, but mainly the market entry of private operators has been noted as a positive thing. (Kivimäki et al., 2010)

One of the smaller European countries which have deregulated the passenger rail market already in 1990s is Estonia. The process started in 1996 and it was finalized in 1997, when Estonian Railways was divided into four sections. Since, the overall structure of the market has changed frequently. The biggest change happened in 2001, when 66 percent of Eesti Raudtee was sold to foreign investors. After few years alterations the state decided to acquire the company back to its own possession in 2007. One of the ulterior motives was to gain funding from the European Union, as the

finance was granted only for governmentally owned railway network. In 2009 the rail network management and traffic operations were separated into two subsidiaries. Although the market is opened for competition, no new entrants have entered the passenger transport market. (Hytönen, 2010)

The market situation in Finland is lagging behind when comparing to neighbouring countries. The railway freight market was deregulated in 2007 due to European Union's legislative demands; however, as no one has entered the market, the only operator is the incumbent, VR Cargo (Mäkitalo, 2011). Few companies have betokened interest towards operating in the freight market, but so far no actions have been seen. In passenger rail transport Finland has qualified the legislative demands, stating the international passenger traffic is available for open competition. Because Finland's location is like island and the gauge differs from European mainland, no one has pointed interested towards this market option. The national passenger rail transport is still regulated by the state. The situation might change in 2018, as Helsinki commuter traffic is noted as the first option to deregulate the passenger rail market. If the scenario would be implemented, market might be liberalized starting from the beginning of year 2018. (ESS, 2010) In addition to European Union legislations, Finland has other contracts to obey. Due to country's location as the European border country with Russia, some special characteristics are agreed. The Finnish-Russian border is sheltered from competition, meaning that in freight side only VR Cargo and the Russian Railways (Российские железные дороги, RZD) can operate cross-bordering transport. Passenger transport has confronted changes recently, as the new high-speed train Allegro started operations on 12th December 2010. The travel time between Helsinki and St. Petersburg decreased over two hours, now the journey takes 3.5 hours. Allegro trains are owned by a joint company of VR and RZD, called Karelian Trains. (VR Group, 2010)

Passenger rail markets have been widely researched in numerous studies, particularly passenger satisfaction surveys have grabbed researchers' interest (see for example Currie & Delbosc, 2011; Dell'Olio et al., 2011; Grdzelishvili & Sathre, 2011; Ieda et al., 2001; Kingham et al., 2001). There exists a clear gap of combining both passenger satisfaction survey and expert interviews. This study tries to tackle the gap by investigating the three North European markets from these two points of views. Additionally, although especially Swedish rail market has attracted researchers due to its interesting nature (see for example Alexandersson & Hulten, 2009; Anttila & Wallin, 2010; Holmgren, 2005; Jensen & Stelling, 2006; Laisi, 2009), Danish and Estonian railway markets are lagging behind. This study tries to evaluate the three markets and unfold interesting insights both to academia as well as business world.

1.2 Objectives of the research and research problem

The objective of the study is to examine the passenger rail market in three North European countries, Sweden, Denmark and Estonia. Especial attention is paid to progress of deregulation, which is first studied via literature analyses and brought to empirical level by scrutinizing experts' standpoints. In order to fulfil the level of knowledge and guarantee a thorough understanding, customer satisfaction survey was organized in the capital cities of the target countries. The purpose is to find out,

how the trend of deregulation has changed the markets and clarify what kind of social consequences the liberalization has unfolded. The purpose is also to understand the status of commuter and long-distance transport in all three countries.

Research's objective is to deliver new insights and describe the status of passenger rail markets in three countries. The intention is to gather novel information by interviewing the different interest groups, but also to widen the scope of understanding by evaluating the standpoints of passengers. Although the passenger rail markets have attracted numerous researchers, there exists a lack of combining these three countries. Furthermore, previous studies mainly concentrate either on expert opinions or passenger surveys, these two forms of study have not been widely interfaced. This study tries to tackle the gap.

By developing the research's objective, research questions are developed. Five sub-questions follow the research question, with an objective to support the research purposes.

The main research question of the study is:

How liberalization has proceeded in target countries? How the changes are confronted among experts and passengers?

The sub-questions are:

1. What kind of social consequences the liberalization has unfolded?
2. What is passengers' general opinion of commuter train transport? Which subjects are influencing on transport satisfaction level?
3. What have been the main confronted challenges and how those have been clarified?
4. Has the market deregulation and decontrol influenced on the interest groups' cooperation?
5. What are the main future possibilities and challenges?

1.3 Delimitations

Although railway industry restructuring is very widely studied, research works have mainly concentrated on freight transport deregulation. Rather many studies have also tackled the changes in the passenger rail market, but the works have mainly concentrated on liberalization pioneers, for example UK, Germany and Sweden. This study provides new viewpoints by investigating the situation in two countries which have not been broadly studied, Denmark and Estonia. Research is limited to focus only on railway passenger market, freight transport is excluded from this study. Due to the fact freight transport deregulation is extensively studied and described in earlier studies of the Finnish Transport Agency, this work concentrates on passenger side.

Study's empirical section is limited into three countries, Sweden, Denmark and Estonia. Although several companies operating in these countries have wide range of operations in other European Union member countries, those functions are excluded from this study. Because the number of operators in the countries in question is rather limited, almost all actors were contacted. This ensures the collected data is accurate and reflects various interest groups' standpoints. In 16 cases only one person was interviewed per organization, which can be noted as delimitation. All interviewees were in managerial or such a position. Furthermore, language problems occurred in Estonia: Although interpreter was present when needed and all information was translated, some thematic entities might have been misunderstood. As research's main objective is to study the railway passenger market as an ensemble, companies' and organizations' all functions are not included.

1.4 Definitions of the key concepts

Commuter transport

Commuter transport alludes to passenger transport mode, which concentrates on transporting passengers to city centres in the mornings and back to suburbs in the late afternoons. Transporting people to and from suburbs can also be called regional traffic or local traffic. Opposite to commuter transport is long-distance transport.

Deregulation

In this research deregulation refers to opening the market for competition, decontrolling the monopolistic market structure. After market is deregulated, new railway undertakings can enter the market. Synonyms for market deregulation are for example open up the market, market liberalization and opening the rail network.

Long-distance transport

Long-distance transport refers to passenger traffic where longer distances are travelled. Long-distance transport can be organized for example via Intercity, Eurocity or high-speed trains. Opposite to long-distance transport is commuter transport.

Railway undertaking

Railway undertaking refers to privately owned company, who practices railway transport as its main business. Synonyms for railway undertaking are for example railway company, railway operator and railway enterprise.

Railway passenger transport

Railway passenger transport stands for transporting people on tracks. Basically, railway transport can be bisected to freight and passenger transports. The other railway traffic alternatives, metro and tramway, are utilized by passenger transportation and briefly described in this study. This study concentrates only on passenger transport.

1.5 Research methodology

The research types are divided into two methods, qualitative and quantitative. The ultimate discrepancy is that quantitative studies concentrate on numerical data, whereas qualitative research tries to evaluate the meaning of words (Eisenhardt, 1989). Qualitative research is often chosen when studying something what is not yet widely studied, as its main objective is to understand the subject (Hirsjärvi et al., 2009; Jarratt, 1996).

Hirsjärvi et al. (2004) have grouped research strategies into three aggregates: Experimental, survey and case study research. Experimental research investigates how changes in one variable influence on another variable, while survey research's main intention is to gather data with standardized model from a group of people. This research strategy's objective is to describe, compare and explain phenomena. Thirdly, case study concentrates on few persons and tries to unfold more intensive data concerning a certain subject. Although case study is often conjoined with qualitative research, it may as well involve quantitative data or both. Case study does not draw only on previous literature or former empirical evidence, building the theory from case study approach is expedient. (Eisenhardt, 1989; Hirsjärvi et al., 2004; Yin, 1981)

Particularly in logistics research case study has become extensively utilized mode. The method is noted practical when studying novel topics (Eisenhardt, 1989). Häkkinen and Hilmola (2005) noticed case studies in logistics have concentrated on descriptive research objectives. Frequently case study is considered to focus only on one case company. This is not the case, as case amount can vary between four and ten if it is needed in order to guarantee the extensive database. (Eisenhardt, 1989) This study utilizes two research methods, survey and case study. The customer satisfaction survey is a classic example of surveys. Furthermore, understanding is expanded by using case study methods when interviewing experts. Due to lack of first hand empirical data, by interviewing experts from Swedish, Danish and Estonian railway markets it was possible to gather genuine data. Research consists of 18 interviews, presented by 20 persons. Therefore can be stated the database is extensive enough, in order to assure the level of knowledge.

In research is often referred to two methods of reasoning, inductive and deductive approaches (Burney, 2008). The difference lies in way of reasoning: Deductive concerns the topic from general to specified data, as logical thinking is used as generic tool when creating a proper construction. Inductive approach generates new knowledge for present theories. (Brown & Eisenhardt, 1997; Burney, 2008; Hilmola, 2003) Although Häkkinen and Hilmola (2005) stated case studies are mostly utilizing inductive approach, Hilmola (2003) has noted often researchers using case study as a research method combine both approaches. This is the case in this research: Due to extensive nature of study, both inductive and deductive methods are utilized. On the other hand study's objective is to generate new findings and confirm existing ones, which fulfils the demand of inductive method. At the same time study tries to understand the factors from general to specified level, which adapts deductive reasoning method.

1.6 Structure of the research

In chapter 1 was introduced the topic of the study. Background information and objectives were presented, which built basis for the work. Furthermore, delimitations and research methodology were described and research questions and key concepts were demonstrated. Chapter 2 introduced the deregulation process from five different perspectives: In order to facilitate the understanding, chapter was divided into history, European Union and the target countries, namely Sweden, Estonia and Denmark. Sub-chapters described the passenger rail transport deregulation progress in countries in question and compared the current situation.

In Chapter 3 was concentrated on the commuter and long-distance passenger rail transport. It described the discrepancies between the modes and illustrated the situation worldwide. Sub-chapters evaluated the status of commuter and long-distance transport in Sweden, Estonia and Denmark by providing various statistics and databases. Following Chapter 4 presented the research environment. Approach for research was delineated, where after the theme interview was presented. Additionally, collecting the data unfolded ways how the data was gathered. The first part of empirical data, customer satisfaction survey, was examined in Chapter 5. Empirical standpoints continued in Chapters 6 and 7, which evaluated the national peculiarities as well as outcomes of the interviews.

Following Chapter 8 brought the empirical findings to theoretical level and discussed the reasons behind the unfolded factors. Finally Chapter 9 engrossed to main results. Theory and empirical data were concluded and discussed more deeply. Furthermore, limitations and suggestions for further research were presented in this Chapter.

2 Passenger Rail Market Deregulation

Railways have been greatly dominated by freight traffic as in USA and Canada over 99 percent of intercity traffic was freight in 1980, 1988 and 2007. In Russia about 92 percent of railway traffic is freight but in China the percentage was about 76 and decreasing. In the European Union there are both freight traffic and passenger traffic dominant countries, where the share of freight was 43 and falling. Difference between freight and passenger markets is that passenger side has been mainly regulated and supported from public funds and freight carriers are expected to operate without support. (Thompson, 2009) In the recent decades the communities have grown and the size and shape of cities has changed in developed countries. This has also increased the traffic demand and length of journeys. Communities have grown close to metropolitan regions due to increased demand for independent residential housing. (Quinet & Vickerman, 2004)

2.1 History

In the transport sector there is a long history of monopolies and removing of them has been one of the objectives when moving towards liberalism. Natural monopoly has often obligations of public service and that creates certain characteristics. The characteristics and challenges can be seen in the railways and are often used as an example when discussing how public service obligations should be organised for example through private companies, franchises or regulated competition. (Quinet & Vickerman, 2004) Term "deregulation" refers to measures done to privatize and/or expose former state monopolies to competition. Monopolies have traditionally been protected with legislation and regulations, changes in regulatory structures are often prolonged and proceed slowly. (Alexandersson & Hultén, 2009)

Railway markets have been regulated in many countries and the United States (US) was one of the first where a regulatory board was established in 1887. The Interstate Commerce Commission (ICC) controlled freight rates, oversaw mergers and acquisitions and enhanced competition between the modes by preventing ownership in different modes. Rail transport lost market share and competition was beneficial to airplanes and road transport. The outcome was that whereas in the 1920 the railroads were responsible for 75 percent of all intercity freight movements, by 1975 the share had fallen to 35 percent. By 1960s the railway industry was sinking financially and many bankruptcies appeared. Railroad Revitalization and Regulatory Reform Act was established 1976 and it eased regulations on rates, line abandonment, and mergers. In 1980 US Congress followed up with the Staggers Rail Act of 1980 and largely deregulated the industry. The Staggers Acts' features were for example greater pricing freedom, streamlining merger timetables, expediting the line abandonment process, allowing multi-modal ownership and permitting confidential contracts with shipping companies. The experiences of deregulation in North America since 1980 were mainly positive; rail freight traffic had grown substantially. However, achieving the high market share it had in the past is not considered to be possible any longer. Railway sector productivity and financial situation has improved after the deregulation (Rodrigue et al., 2009; Waters, 2007)

In US company called Amtrak -the National Railroad Passenger Corporation- was established in 1971 by the Congress to operate a nationwide passenger train system as railways were rapidly ending their passenger services. Passenger sector in the US operated at a deficit estimated to be 1.7 billion US dollars in 1970. Amtrak is a semi-governmental enterprise and designed to make profit. Technically it was not a governmental agency, but it was under a direct governmental supervision. In the beginning Amtrak had considerable success in improving passenger service and annual volume of passengers increased from 16.9 million in 1973, to 22.1 million in 1993. (Due, 1997) After the success in early 1990s, the trend towards improvement was reversed; passenger volumes started to fell and the deficits increased. The Congress was reluctant to provide more funds to the company causing reductions in service, resulting further losses in traffic. The future of Amtrak in long-range seemed difficult. Cutbacks and service deterioration could lead back to the situation US was in before Amtrak was founded. Amtrak had been supported by the state, but 1996 state support was decided to end. Amtrak was scheduled to be liquidated, if it will not become self-supporting. (Due, 1997) In 1997 a law was enacted by the Congress and the President for Amtrak to be self-sufficient (run without federal subsidies). Reform Act authorized totalling about 5.2 billion US dollars for 1998 through 2002 to Amtrak. Cutting cost was not successful and leaders of Amtrak decided to concentrate on growing the revenue to be able to cover expenses. Company's annual revenues rose by 440 million US dollars between years 1997 and 2001. Unfortunately the same increase was realized also in the costs, 929 million US dollars, increasing the company's operating loss. (Congressional Budget Office, 2003) Years later Amtrak is still operating nationwide rail network that covers over 500 destinations in 46 states and three Canadian provinces on over 21 000 miles of routes. Company is the nation's only high-speed intercity passenger rail provider and operates nearly 60 percent of its trains at speeds in excess of 90 mph. In annual report of 2009 company reported total revenue of 2.35 billion US dollars and accumulated deficit & comprehensive loss of 25.74 billion US dollars. Net loss was 1.26 billion US dollars as it was 1.13 billion US dollars in 2008. Amtrak experienced a decrease in revenues and increase in expenses when compared to fiscal year 2008. Amtrak relies on cash flows from operations and from the United States government (1.5 billion US dollars per year) to operate the national passenger rail system and maintain the infrastructure. Each Amtrak ticket sold is subsidized by state an average of 54.78 US dollars. (Amtrak, 2009; Amtrak, 2011; Transportation and Infrastructure Committee, 2010)

A success story of a private railway company is found from Hong Kong. Guangshen Railway Company was established on January 1st 1984 when the Guangshen Railway was separated from Guangzhou Railway Sub-administration under the former Guangzhou Railway Administration. In 1993, Guangzhou Railway Administration was renamed as Guangzhou Railway Company. In 1994, Guangshen Railway Company was one of the 22 pilot companies nationwide participating on shareholding restructuring. Guangshen Railway Company Ltd. was established as the first joint-stock railway company in China on April 9th in 1996. Principal business areas are railway passenger and freight transportation, railway network usage and services, which collectively generated 92.9 percent of total revenue in 2009. In 2009, total revenue of the company was 1.81 billion US dollars, share of railroad passenger transportation service was 1.05 billion US dollars, respectively. Profit from the operations was 285.20 million US dollars. (Guangshen Railway Company, 2011; Guangshen Railway Company, Annual Report, 2009)

In the UK rail reformation occurred in the 1990s and the idea was to privatize and separate functions, as discussions had been going on in the government since 1980s. In the freight sector partial deregulation could be seen already in 1989 through privately owned terminals, locomotives and wagons. The government's proposals how the privatization would be effected were published after the General Election in July 1992 in the White Paper called "*New opportunities for the Railways: The Privatization of the British Rail*". Officially the privatization of British Rail was realized between 1994 and 1997. (Knowles, 1998; Laisi, 2009) The key question how to make British Rail attractive to private sector purchasers was addressed by the Railways Act in 1993. The mainly unprofitable rail passenger business was completely franchised to the private sector as objective was to reduce the amount of public subsidy required (Knowles, 1998). The privatization process in the UK did not have desired effects: Passenger train accuracy was lower than ever, infrastructure was lacking investments and number of accidents increased. Furthermore, government was still needed to support the industry financially. In 2002 UK government decided of a 10-year plan and support of 34 billion pounds to modernize the railway system. (Hilmola & Szekely, 2006)

According to Kivimäki et al. (2010) there are now 45 companies serving passenger rail transportation services in the UK, but even the biggest operators' market share is around 10 percent together (South West trains, Firs Great Western and National Express East Anglia). Operating companies are based on franchising contracts with increasing number of economic incentives. Common view has been that time after the National British Rail has lead to deterioration of service as the rail network condition is poor and capacity increase is not possible. Passenger volumes have grown, but the problem is bad condition of the infrastructure, which is the result of deregulation.

Germany also restructured its railway market in the 1990s after the poor financial situation of the state owned monopoly Deutsche Bundesbahn (merger of West German and the former German Democratic Republic railway companies) in the late 1980s. Differently from the UK, the governmental ownership of the rail network was retained. Germany introduced an "internal market structure", which consisted of a holding company and five independent public limited operating companies. (Greyer & Davies, 2000) There are over 300 companies operating in the German railway market. Railway passenger transport is also operated with private companies, but only in local and regional traffic. The market share of state owned DB is still over 80 percent. Long-distance passenger operators have had possibility to enter the market since 1994 but operations are mainly performed by DB. Only four operators are organizing long-distance passenger transport besides DB. There has been a discussion to privatize DB and divide it to three entities: Passenger traffic, freight traffic and infrastructure with logistics. Infrastructure would still remain in the possession of state and one fourth of others would be privatized. The economic crisis has postponed the privatization process; starting earliest mid of 2011. (Kivimäki et al., 2010)

Japanese National Railways (JNR) was privatized already in 1987. JNR was divided into six passenger railway companies (JRs) and one freight railway company, when privatization occurred. (Matsumoto, 2007) According to Quinet & Vickerman, (2004) the reform of Japanese railways was realized in 1989. When the JNR was divided, the new companies were free from control of the state. There was hardly any competition as companies had own territories to operate. Companies could develop and decide on fares, which became a bit higher. Result of privatization was better services, passenger needs were better taken care of and frequency of trains increased. This led

also to increase of traffic with 20 percent between years 1987 and 1991. Companies become more efficient when the number of workers decreased. Main objective of privatization was to reduce the power of labour unions, not to introduce competition. (Quinet & Vickerman, 2004)

Railway reform in France has been more limited than in other countries presented in this sub-chapter. The French national railway company (SNCF) was also reformed to be able to separate infrastructure management, freight and passenger operations. In 1997 a public agency Rèseau Ferré de France (RFF) was established to take over the infrastructure management. (Quinet & Vickerman, 2004) According to Nash (2008), there are three alternative models of rail restructuring: Swedish, German and French. French model involves the separation of infrastructure from operations, but no competition, and a monopoly operator is responsible for the traffic. (Quinet & Vickerman, 2004)

2.2 European Union

The European Council was established in 1949 and one year later the European Coal and Steel Community tied the countries of Europe together economically and politically in order to achieve lasting peace. European Union was founded by six states (Belgium, France, Germany, Italy, Luxembourg and the Netherlands) who signed the treaty in 1951. Free movement of people, goods, services and money inside the European Union area was one of EU's achievements and in 1957 the European Economic Community (EEC), also known as "Common Market" was presented. (History of European Union, 2011) Since the 1950 there have been enlargements and several actions have been done to improve the situation of the members and the European Union's economy. For example, in the 1960s customs charges were removed when trading was done with members. There have been difficulties in implementing fluent trade between the member states due to different legislative base and restrictions, but in the 1990s the "Single Market" was completed and also the time of Cold War ended. (History of European Union, 2011)

The rail sector directive 91/440 in year 1991 laid the ground for opening the market by establishing the First Railway Package in 2001. In few countries, for example in Sweden, Germany and in UK, the market had been opened already in the 1990s. Two other packages followed the first one. (CER, 2010) White Paper *"A Strategy for Revitalizing the Community's Railways"* was established in 1996 to complete and reinforce the work begun with Directive 91/440. Due to the first White Paper the member states should free railways from debts and regularize their financial issues according to Community rules with States' support. Infrastructure management and railway services should be separated and public service obligations should be fulfilled with contracts between railway undertakings and governments. Aim was the harmonization of technical standards to achieve interoperability of rail networks and allowing the workforces retraining and restructuring. Second white Paper *"European Transport Policy for 2010: Time to Decide"* was submitted in 2001. Objectives of the White Paper were now ensuring the share of traffic carried was appropriate compared to capacity when moving freight from roads to rails. Secondly, enlargement in form of new member states brought challenges also to railways as there was large scale investment requirements to reach international standards. (Quinet & Vickerman, 2004; Summary of First Railway Package, 2010)

In 2004 the Second Railway Package was introduced. The aim of the package was to revitalize the railways through the rapid construction of an integrated European railway area. The White Paper was the base for presented actions. The objectives were improved safety, interoperability and opening up of the rail freight market to competition in January 2007. Proposition to establish European Railway Agency was also established in the package. European Railway Agency would be responsible for giving technical support in the safety and interoperability work. (Summary of Second Railway Package, 2010) The Third Railway Package was introduced in 2007. Main objectives of the package were uniform locomotive driver license and certificate, but also passenger rights were introduced. International passenger traffic including cabotage was liberalized based on the Third Railway Package in January 1st 2010. Member states can also open their domestic market to competition, if they are willing to do so. (CER, 2010; Summary of Third Railway Package, 2010) Current situation with the implementation of the directives and recommendations given by the European Commission varies between different countries. Some countries, for example Sweden and UK have reformed their railways much further than required in the directives. (Quinet & Vickerman, 2004, 307)

The Rail Liberalization Index (LIB Index) gives information on the relative degree of market opening in enlarged area of European rail transport, consisting both freight and passenger transport. LIB Index has been introduced for the first time in December 2002; figure 1 is from January 2007 as there occurred need for updating due to rail freight market opening and enlargement of EU with Bulgaria and Romania. It can be stated that countries included in the index have opened their rail markets. Countries are divided in three categories by the stage of liberalization: Advanced, on schedule and delayed. (The Rail Liberalization Index, 2007)

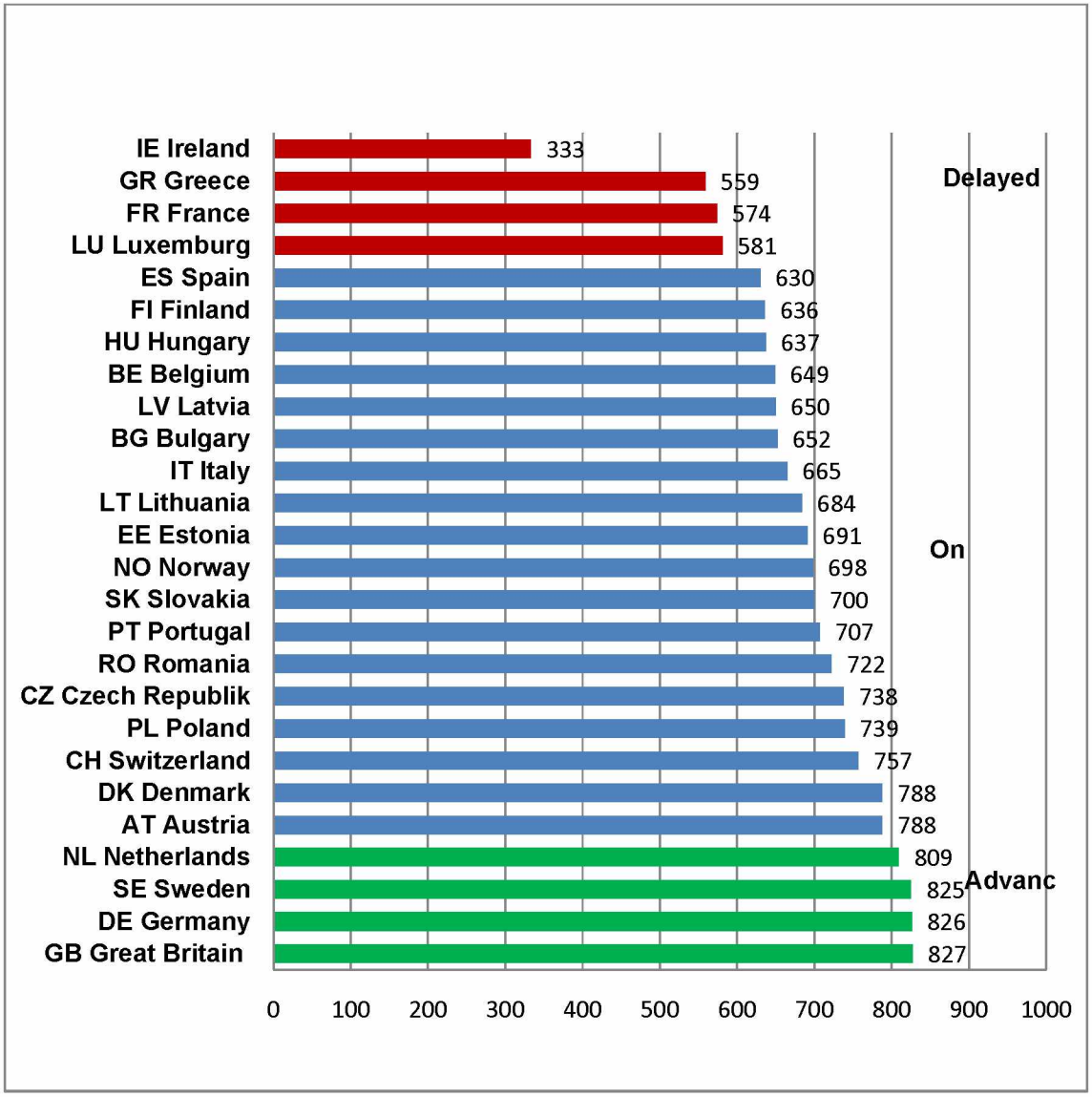


Figure 1 *LIB Index 2007, country division (Adapted from the Rail Liberalization Index, 2007)*

Figure 1 presents the countries liberalization stage. Great Britain, Germany, Sweden and the Netherlands are considered to be "advanced" what comes to opening the market. Most of the countries are "on schedule" including Denmark, Finland and Estonia. Four countries have "delayed" status: Luxemburg, France, Greece and Ireland.

Altogether passenger rail transport in Europe has been decreasing in the last decades as in 1970s (EU15) rail traffic share was over 10 percent, whereas in 2006 (EU27) it was 6.9 percent of passenger land transport. The falling of freight volumes has stopped and the decline of market share for rail in freight traffic has slowed in recent years as significant structural changes have been made in Europe's railways. Initiatives for opening the railway freight market to competition in full extent and technical harmonizing have proven to have positive effect. More competition causes pressure for both the operator and infrastructure managers to rationalize, innovate and cut costs by being more efficient; increasing amount of return on investment can be also achieved. Many railway undertakings in Europe operate at profit, but certainly not all, as railway's production costs are high to compete with other transport modes.

Furthermore, billions of Euros are given every year by the European Union as state aid to the Europe's railways to use for infrastructure and restructuring of loss-making enterprises. (European Commission, 2008)

The EU has liberalized the market for international passenger traffic on January 1st 2010. Licensed and certified railway undertakings established in the EU are now able to offer international passenger services in the international routes. Two branches in the passenger transport sector are expected to have bright future: Commuter traffic and high-speed passenger transport. Commuter traffic is area, where competition can be created for the public service contracts. International high-speed services have increased, and further development of the trans-European high-speed network is facilitated by the European Rail Traffic Management System (ERTMS). Although airlines are serious competitor when talking about long distance travelling, new initiatives are needed and promoting competition can be a way to achieve those. The opening of the countries' national rail passenger market to able cross-border competition is one of future possibilities. (European Commission, 2008)

According to Alexandersson & Hultén, (2009) the future will bring two new types of competition to European railway market. First form of competition is on-the-track on international lines, which is based on the cabotage principle. This means that traffic is between EU member states and allows picking up passengers from stations along the line; stations in the foreign countries are allowed without having a contract with local operators. Second form of competition is on-the-track in national market. This kind of competition is limitedly used in the UK and regulatory framework was finalized in Sweden in October 2010. (Alexandersson & Hultén, 2009)

European railways are confronting several changes in the coming years. Various types of changes (for example legal, technological, demographic and market changes) create challenges also for education in the railway sector. Deregulation and internalization of the rail freight and passenger sectors has also effect to the needed workforce to ensure the competence of the European railways. Rail Training Study 2020 (2007) recognized over 100 locations in Europe providing rail training facilities. About 50 percent of these facilities were governmentally owned and 50 percent privately owned. In addition also railway undertakings have own training facilities or they provide apprenticeships. In general the duration of locomotive driver's training takes minimum of 23 weeks and maximum of 41 weeks, longest training reported in the study was 160 weeks. The study estimated that approximately 11 thousand locomotive drivers and 20 thousand other staff related to railways are educated in European training centres every year. According to the study the European Railway Sector employs over 900 thousand people. In the near future market will confront increasing number of retiring railway workers. Difficulties might appear when their positions are needed to be filled and the industry is not attractive in the eyes of younger people. Future challenge for the training centres is hiring qualified trainers who prefer to work in teaching and not in operations. Majority of the facilities are owned by railway undertakings. The market of training is liberalizing and railway undertakings are expected to offer use of the facilities to other operators, when more competition occurs. New entrants of the market benefit from the competitive situation as it facilitates the access to training. The effects of liberalizing the railway market will reflect also to the demand of training. The number of operators in the industry is increasing which can lead to more competition between training centres. Challenge for the training centres is adapting to the changes in the market, for example peaks for training demand can be created when concessions are won. One more challenge is

the demand for employees to be more flexible and to have wider range of expertise in order to do various tasks in the railway undertaking. (Rail Training 2020, 2007)

Directive 2007/59/EC of the European Parliament was established on 23rd October 2007. It concerns the certification system for locomotive drivers on the European Union (EU) rail network. Aim of the directive is to have a uniform license and a harmonized complementary certificate inside EU rail network. The procedure for obtaining the license and certification contains many specific requirements. License identifies the driver and the authority responsible of issuing it, also duration of validity is mentioned. Issuing of the license is done based on application, where is for example stated the driver meets requirements, like medical state (also psychological), education and professional competence. The certificate states the holder has received training under railway undertaking's safety management system. The certificate authorizes in one or more of the categories: Shunting locomotives and/or carriage of passengers and/or goods. Following modes are excluded from the directive: Metros, trams and other light rail systems, networks that are functionally separated from the rest of the rail system and used only to operate local and urban services. Also privately owned railway infrastructure is excluded. Phasing the directive is realizing in different stages, at the latest on 29th October 2018, all drivers should have licenses and certificates in conformity with the directive. (European Union, 2010)

Locomotive drivers are one of the key factors in railway transport; however, the automatic train operation (ATO) might change the situation. The system was initiated in New York, Barcelona and London, where the first ATOs went into testing in early 1960s. The main objective was to provide more consistent driving and the fact one-person operation enabled cost-efficiency attracted counterparts. Based on the trials "attended ATO" was launched: The first to operate revenue services was London's Victoria line in 1968. Today the longest line is SkyTrain in Vancouver with 68.7 kilometres. However, once Dubai metro's green line is finalized in fall 2011, it will commandeer the status of the world's longest driverless network. (Parkinson & Fisher, 2000; Rosenthal, 2009; SkyTrain, 2010; Zawya Projects, 2010)

Although ATO stands for driverless trains, often onboard is a person who checks the doors and changes to manual mode in case of problems. Such systems are utilized for example in Beijing, Madrid and Kuala Lumpur. Latest technology has brought to markets a new model, which does not need personnel at all; such examples are found from various airports worldwide as well as metros, for example Dubai, Tokyo and Copenhagen. (Bombardier, 2011; Copenhagen Metro, 2011; Parkinson & Fisher, 2000; Railway Technology, 2011; Yurikamome, 2011) ATO system has been recognized as possible option for striking drivers; the latest news came from London, where the Mayor was threatening the city could increase the utilization of ATO trains and employ non-union drivers. Based on some calculations, the striking drivers are causing costs over 60 million Euros per day. (BBC, 2011; HS, 2011)

Contract types are quite similar in EU countries. Public Service Obligation (PSO) contract is common in areas where organizing public transport is not commercially profitable. For example the international market for regional train services that cross borders is quite limited, as in many places border areas are not densely populated. In cases like this the international PSO contracts are commonly applied to cover created operational deficits. PSO contracts can also be used to international long-distance services to ensure the continuity. Regional market for trains financed under PSO contracts is also growing. Several routes have enjoyed a revival, after being neglected

by their incumbent operators for many years. In many EU countries private operators compete with incumbent operators for the PSO contracts, and in rest of the countries this is expected to be realized in the near future. (TREN, 2010)

Competitive tendering has been a common way in Sweden to attract operators to bid for operating contract for a certain parts of the railway; for example, such a process was utilized in Stockholm commuter trains. In tendering system the authority usually provides rolling stock. There have been two types of contracts: Gross cost contract and net cost contract. In gross cost contracts the operators bid for lowest amount of subsidy it needs to cover costs (+ profit margin). Local authority does the planning and marketing, decides ticket prices and takes all revenues from fares. Penalty system is used when delays occurs. Contract period is normally from three to five years with possible extension. In net cost contracts the operators have to project both costs and revenues, bidding for the minimum amount of subsidy needed to cover the deficit (+ profit margin). Contract duration is normally five years with possible extension. Gross contract type has been more used in Sweden and has proven to have cost reducing tendency. In the UK net contract type has been more used but their franchising system has not functioned as well as the Swedish model. (Alexandersson & Hultén, 2006; Nash & Wolański, 2010)

2.3 Sweden

Deregulation has been argued to increase efficiency; Sweden and EU have proceeded in deregulating railways based on this fact. Organizing the deregulated market engender opinions among experts, politicians and other stakeholders. Different types of solutions have been suggested, for example privatized monopoly, competition in some markets, competitive tenders or auctions. Some suggest that operators can compete on the same track in order to provide the best service. (Alexandersson & Hultén, 2009) The process of deregulating the railways in Sweden started in the 1980s and has continued ever since slowly but surely. A new transport policy decision was made in 1988 and Sweden became the first country that separated the construction and administration of the railway infrastructure both organizationally and legally from the train operations. Infrastructure authority, the Swedish National Rail Administration (previously Banverket, today Trafikverket) and Swedish State Railways SJ were established through this division (Holmgren, 2005). In 1990 County Public Transport Authorities (CPTAs) were given the responsibility of the county lines (SJ was responsible for main lines and freight transportation), which was the first step towards new actors entering the market. First competitive tendering took place in 1989, and in 1990 the first entrant started operating in regional traffic. As the effects were positive, CPTAs were given more rights in counties' mainlines. Since 1st July 1996 freight carriers have had free access to the tracks. (Jensen & Stelling, 2006)

Concerns about the deregulation have also been presented. When a monopoly is broken to several sub-markets and operations within a highly specialized market, the situation may lead to increasing transaction costs. When the deregulation of the British Railway industry was done in 1990s, the outcome was more than 80 companies. When large railway undertakings are split to smaller entities, there is a possibility for new monopolies to appear. Also if companies operate only to make profit, the learning and efficiency can turn out to be smaller than expected in the competitive market. (Alexandersson & Hultén, 2009)

Jensen & Stelling (2006) have evaluated the Swedish deregulation model in general terms and made following conclusions. Deregulation has been generically cost effective in terms of reducing costs in both infrastructure management and train services. Competitive pressure created between the operators has reduced costs. The vertical separation of infrastructure management and traffic operations has increased some deregulation related costs, such as restructuring and transactions, but this is covered with the net effect achieved from competition between operators. Technology, intermodal competition and general political pressure explain about half of the cost improvements (observed periods 1970-1988 and 1989-1999); however, these cannot be solely explained by deregulation. (Jensen & Stelling, 2006)

As mentioned in previous paragraphs Sweden has been a pioneer in deregulation of the rail market. Share of rail in passenger transport is eight percent and in freight the percentage is 40 (tonne-kilometres) of transported goods. In Sweden there are 12 companies that offer rail passenger transport services. Until October 2010 long distance operating was done by national SJ exclusively. In June 2009 the Swedish government decided needed actions, which aimed to open the market in different stages. In July 2009 the traffic on weekends was opened to competition and in October the international passenger traffic was also deregulated. Original schedule of the government was to completely open the passenger railway market in December of 2011. The market opening was implemented one year in advance in 1st October 2010. Since then any railway undertaking with a registered office in EES or Switzerland has the right to operate passenger rail traffic in Swedish rail network or Trafikverket's rail network. (Network statement, 2011) The biggest private companies operating in the Swedish passenger rail market are Veolia, Arriva, DSBFirst, Tågkompaniet and A-train; 25 percent of total train kilometres in Swedish are under competition. Tendering system offers contracts of five years and the contracts have strict content for example concerning schedules, rolling stock and maintenance. Experiences of deregulation have been positive in Sweden and passenger volumes have increased. (Kivimäki et al., 2010)

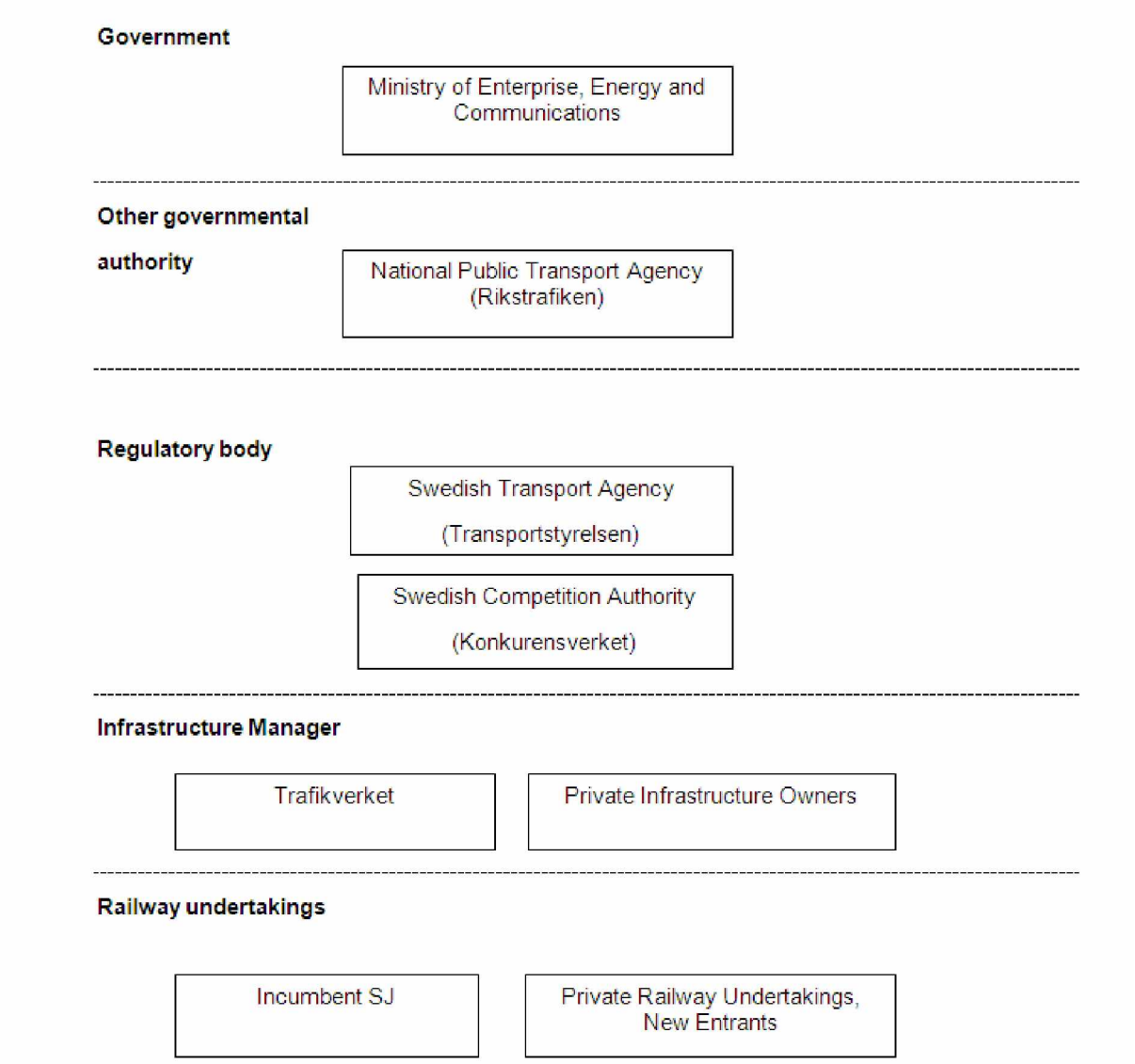


Figure 2 *Key stakeholders in the Swedish railway industry (Adapted from Anttila & Wallin, 2010; Laisi, 2009)*

Figure 2 presents the key stakeholders in the Swedish railway industry. Ministry of Enterprise, Energy and Communications is responsible for the politics concerning railways together with the National Public Transport Agency (Rikstrafiken). The ministry also grants the funding for Trafikverket to maintain the infrastructure. Rikstrafik is also responsible for developing and coordinating of the public transport system and for example competing of the national train traffic. The Swedish Transport Agency (Transportstyrelsen, former Järnvägstyrelsen) is responsible for forming regulations, and examining and granting permits to railway undertakings willing to operate on the Swedish railway infrastructure. Permits granted by the agency are for example licence to provide traction power and perform rail traffic, safety certificate and special permits. The Transport Agency also supervises safety issues in the railways. (Transportstyrelsen, 2011) Konkurensverket supervises the laws are obeyed in competition situations. (Anttila & Wallin, 2010; Laisi, 2009) Maintenance of the tracks was solely performed by SJ before year 1988. In July 2001, the Banverket decided to open up the maintenance for free competition. For several

parts of the network, companies were asked to bid over maintenance contracts in 2002. (Holmgren, 2005)

Over 90 percent of people employed in the railway sector in Sweden are unionised in labour unions. Landorganisationen I Sverige (LO) is the central umbrella organization for the majority of affiliated unions which organize employees in the private and public sectors. The 16 affiliates of LO have about 1,918,800 members. LO coordinate for example wage bargaining, international activities, trade union education and equality of sexes and social security. TCO has 17 affiliated unions, with together about 1.3 million members. Saco-förbundet Trafik och Järnväg (TJ) is an umbrella organization for 26 university graduates unions, it has 569,000 members. In 2005, approximately 4,440 employees from the railway sector were members of TJ. Facket för service och kommunikation (SEKO) is the national Swedish labor union for people working in the services and communications sector. SEKO has 165,000 members in nine different branches and railway branch consists of around 27,000 members (for example locomotive drivers, onboard services and maintenance workers). Statstjänstemannaförbundet (ST) represents workers in the public sector. The union has nearly 100,000 members. ST represents over 1,200 locomotive drivers. Swedish Engine Drivers' Union, SLFF is a labor union only for drivers. (European Foundation for the Improvement of Living and Working Conditions, 2006)

Locomotive drivers are educated in Järnvägsskolan and the duration of the education is one year. It is public vocational education and anyone who meets the basic requirements can apply. After the deregulation there are various companies where graduates could work. Locomotive driver's salary level is initially between 17-25000 kr per month. The salary rises quite quickly and even after four years it can reach to 25-31000 kr / month including various surcharges. (Järnvägsskolan, 2011) Locomotive drivers and other railway workers are also trained (or given additional courses) in Östersund Järnvägskompetens, Nyköpings Järnvägskonsult, TCC Transport Competence Center AB, Nordisk Spårsäkerhet AB, Utbildningscentret för kollektivtrafik AB and TrainDrivers AB. (Rail Training 2020, 2007)

2.4 Estonia

Baltic countries joined European Union in 1st May 2004. Since joining EU, Estonia has been obliged to follow the legislation of EU concerning railway industry. The privatization process in Estonia was considered to be quite easy when compared to other countries in Western Europe. The state-owned company Eesti Raudtee (ER) had only been operating since 1992 and the privatization process started in 1996. (Hytönen, 2010) ER was split to several new entities in 1997: Eesti Raudtee AS (freight carrier), Edelaraudtee (domestic passenger lines), Elektriraudtee Ltd. (suburban operating) and EVR Express (international passenger operations). (TERA International Group, 2005) Edelaraudtee AS became the rail passenger operator in 1997 and concurrently the owner of the rail network on the lines it was operating. Edelaraudtee was also responsible for operating passenger transport in the rail network owned by ER, which was done by diesel locomotives. International rail passenger operator EVR Express (nowadays AS GoRail) had several lines but most of them are closed, nowadays only one train is operated from Narva to Moscow. (Hytönen, 2010; TERA International Group, 2005) In February 2001 GB Rail (UK) won the Edelaraudtee tendering and company was privatized. GB Rail demanded

increased subsidies for lines Narva-Tallinn and Tarto-Tallinn, otherwise they threatened to close some lines. Subsequently, the Narva-Tallinn line was actually discontinued. (Ojala & Queiroz, 2001)

The privatization process in Estonia has had a lot of American and British influence. In the final stages of the privatization process of Eesti Raudtee a consortium called Rail Estonia won the tendering at a price of 1.71 billion kroons (96 million US dollars) on 13th December 2000. Majority (90 percent) of Rail Estonia belonged to international consultancy group called Kingsley Group, with two U.S. railway companies, CSX Corporation and Rail America together represented with 10 percent. The structure and accuracy of information concerning Rail Estonia was questioned and in February 2001 a group of judges was appointed to investigate the process. (Ojala & Queiroz, 2001; the Baltic Times, 2001) The Supreme Court annulled the decision on 20th June 2001, made by Estonian Privatization Agency on 13th December 2000, which stated the offer of Rail Estonia was the best. The government formally selected the second best offer (Baltic Rail Services) after the Supreme Court's decision. The bidder who placed third in the competition was Raudtee Erastamise Rahva AS (RER), a consortium of Estonian business people and Sweden's national railway company SJ. (Eesti Raudtee, 2011; the Baltic Times, 2001) The main source of income for the Estonian Railway has been oil transportation from city of Narva (located near Russian border) to the Port of Tallinn (Lumiste et al., 2008).

In August 2001, 66 percent of ER was finally sold to foreign investors; this was the first privatization of a vertically integrated European national railway company. New main owner of ER was Baltic Rail Services (BRS). BRS was owned by several entities: Ganier Invest of Estonia, RailWorld Estonia LLC, which was a subsidy for RailWorld U.S, Railroad Development Corporation of U.S and Emerging Europe Infrastructure Fund of U.K. The acquisition of ER was financed partly by a loan from the International Finance Corporation (IFC). (TERA International Group, 2005) The situation in 2001 was rather interesting: The whole rail network was privatized and state owned only Elektriraudtee and 33 percent of ER. In 2007 the state decided to acquire Eesti Raudtee back to its possession. One of the reasons effecting the purchasing decision was surely EU funding for the developing railway network, as funding could not be applied for privately owned railway network. On 14th January 2009 the rail network maintenance and traffic operations were separated by establishing two subsidiaries: AS EVR Infra and AS EVR Cargo. The Estonian railway market is open for free competition in freight transport, today two companies are carrying freight. Passenger rail market is also open for new companies to enter but no new entrants have appeared. (Hytönen, 2010) Key stakeholders in the Estonian passenger rail market are presented in figure 3.

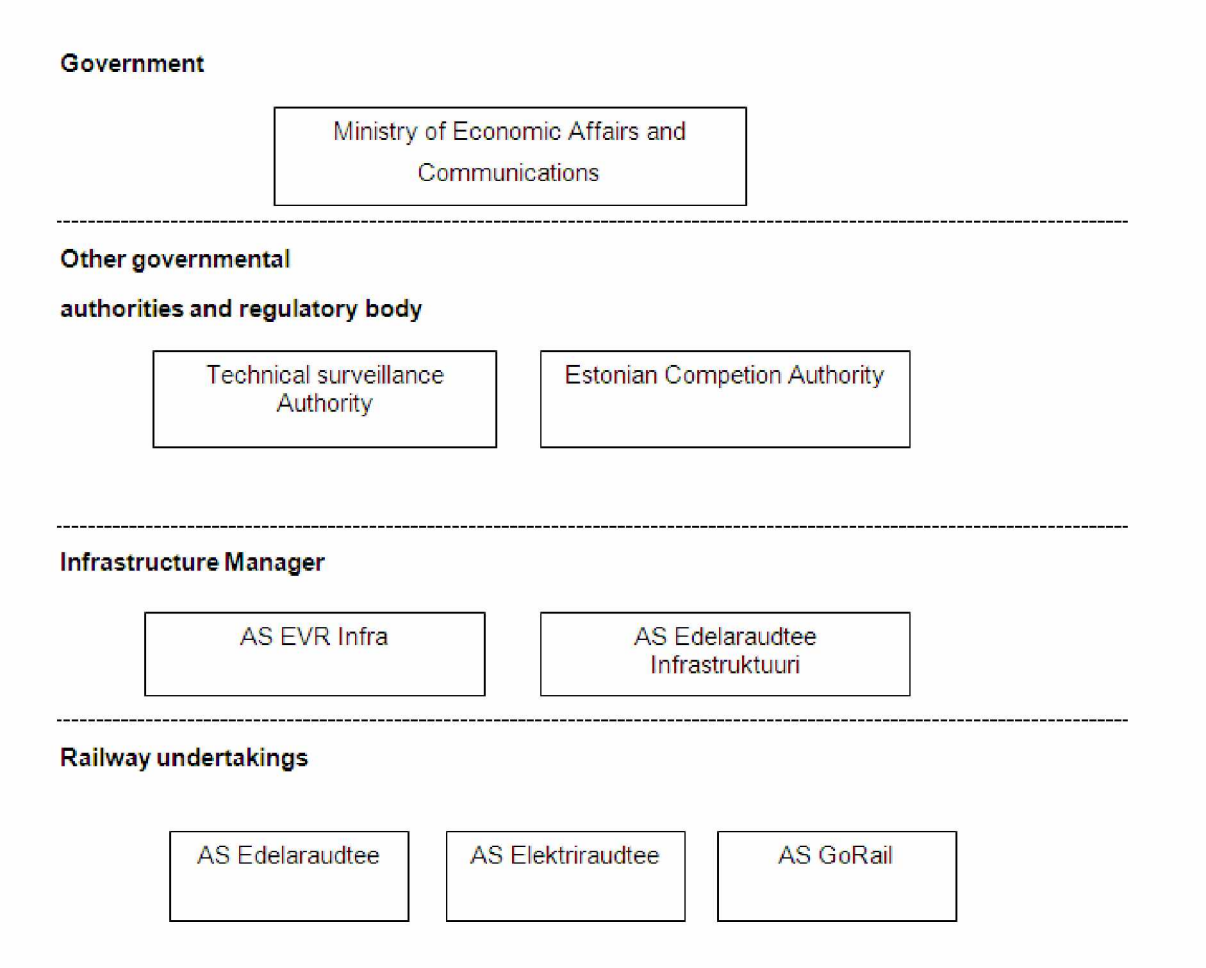


Figure 3 *Key stakeholders in the Estonian railway industry (Adapted from the Estonian Technical Surveillance Authority, 2011b)*

In Estonian railway sector the Ministry of Economic Affairs and Communications is the institution responsible for the elaboration of the legal framework. The Ministry's Road and Railways Department elaborate national development plans concerning for example railway infrastructure, logistics, passenger transport, freight transport and rolling stock. Furthermore, the fields related to safety of the railways (implement development plans, preparation of draft legal acts) are also concerns of the department. Ministry of Economic Affairs and Communications supervise the Railway Inspectorate (a governmental organization). The Railway Inspectorate performs for example national surveillance and applies national enforcement in the railway field stipulated by the law. Railway infrastructure is privatized in Estonia; railway freight traffic is done on the basis of private law. Two rail networks are for public use in Estonia, which belong to AS Eesti Raudtee and Edelaraudtee Infrastruktuuri AS. In Estonia there are both state owned and privately owned companies acting in the railway sector. (The Estonian Technical Surveillance Authority, 2011a) In 2000, the Railway Administration in Estonia started to issue locomotive drivers` licences. At the end of year 2005, approximately 550 valid locomotive drivers` licences were issued. In addition, documents for issuing approximately 200 locomotive drivers` licences were under process. (The Estonian Technical Surveillance Authority, 2011a)

In Estonia approximately 12 percent (80 thousand members) of all employees are members of labour unions. The number of union members dropped significantly in the 1990s. Estonia has two trade union confederations, EAKL and TALO. EAKL is considered as a manual workers' confederation and TALO is primarily a confederation of non-manual workers. (Worker-participation, 2010) EAKL has 19 branch unions that represent state and municipal government officials, education workers, health care workers, transport workers (road, railway, sea and air transport), industrial workers (energy, light industry, food industry, timber and metal industry) and people employed by the service sector. (EAKL, 2011) There are three unions for railway workers and locomotive drivers in Estonia, which belong to EAKL. The unions are Railway Employees' Trade Union (ERAÜ), Locomotive Workers' Trade Union (EVA) and the Estonian Locomotive Workers' Vocational Union (EVKL). (Eurofound, 2004)

2.5 Denmark

Denmark has not taken the deregulation as further as Sweden but some private railway undertakings are in the market. In Denmark there are nine companies that operate in the passenger rail service market; state owned DSB (divided into Copenhagen local traffic, S-Tog and long-distance traffic) has over 90 percent market share. Five railway undertakings providing passenger rail transport are regional companies which are owned by regional governments and private shareholders (10 percent). There is an agreement with DSB that maximum of 15 percent of the railway lines can be put under competition. In Denmark only two companies (Arriva and DSBFirst) have won traffic from DSB in 2002 and 2008. (Kivimäki et al., 2010)

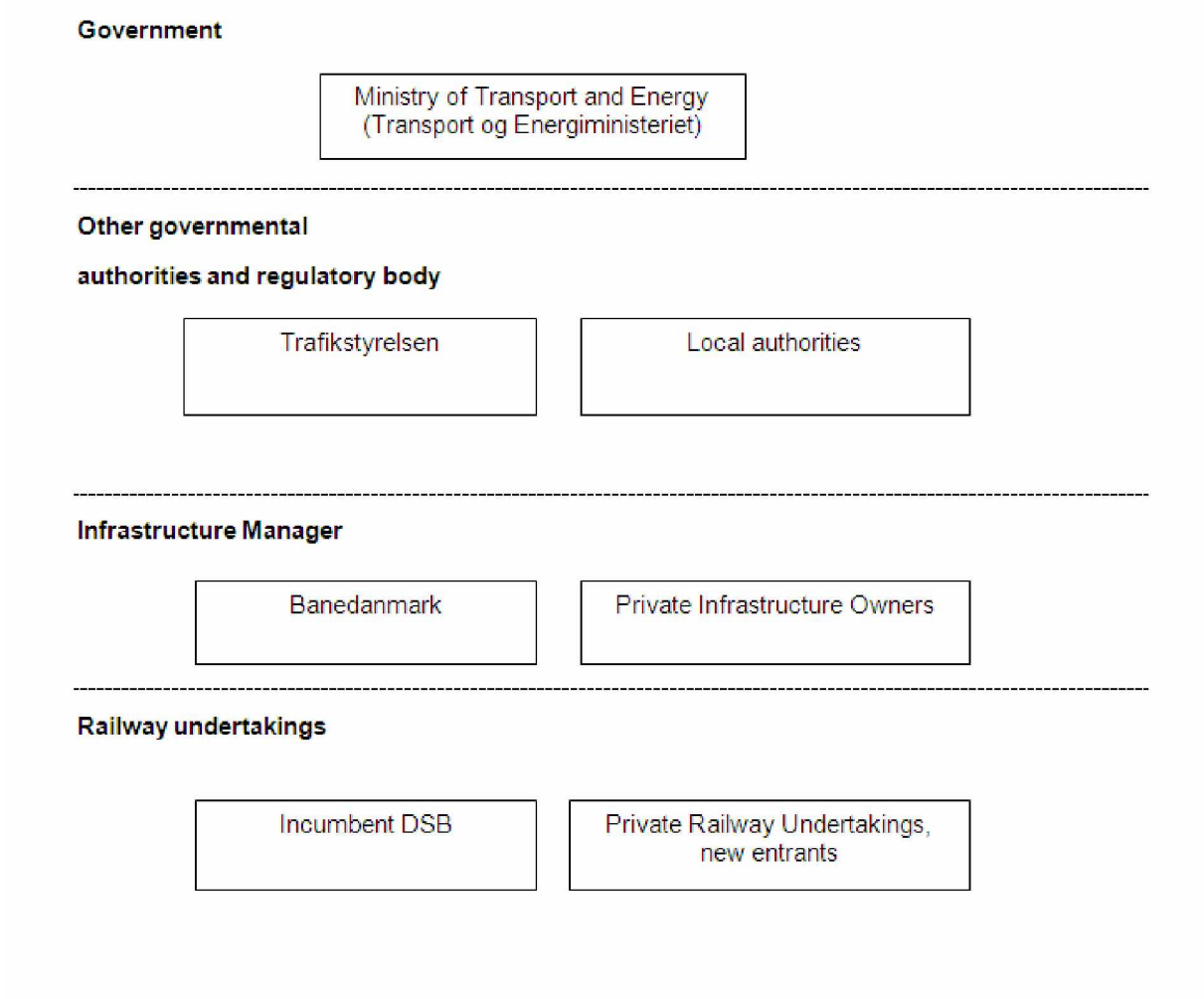


Figure 4 *Key stakeholders in the Danish railway industry (Adapted from Anttila & Wallin, 2010)*

Figure 4 illustrates the key stakeholders in the Danish railway industry. Ministry of Transport and Energy is responsible for the railway politics, access charges and contracts together with DSB and Banedanmark. Regional authorities have also responsibilities as they are partly responsible of regional traffic. Trafikstyrelsen is responsible for planning the railway services, ensuring of investment being properly utilized and monitoring the operators that they obey the contracts. (Anttila & Wallin, 2010) Banedanmark is a state-owned enterprise that operates under the Danish Ministry of Transport and Energy. Banedanmark, also known as Rail Net Denmark, is responsible for the tracks, signals and safety systems. Banedanmark's duties include also maintaining the network and building new lines. Furthermore, monitoring of rail traffic and traffic management is also Banedanmark's responsibility. Banedanmark is responsible for 2,323 km of railway tracks and approximately 2,700 trains run on the rail network daily. (Banedanmark, 2011)

The training of locomotive drivers has changed in Denmark during the last ten years. In the past DSB was responsible of deciding the content of the curriculum. DSB was also involved in the training of all the train drivers for railway transport. When the market confronted first tendering process in 2002, DSB was still responsible of training all the drivers. Arriva took over the passenger transport in parts of the country in 2003 and the training became a problem. On 1st April 2005 the locomotive

driver education become a responsibility of the Ministry of Education in cooperation with the Ministry of Transport. (Rail Training 2020, 2007) Locomotive drivers are now educated in EUC Syd and CPH West. EUC Syd is a vocational college for trades and industry. School was founded in the 1920s and it is located in Southern Denmark in eight different sites, in four cities (Sønderborg, Aabenraa, Tønder and Haderslev). (CHP West, 2011; EUC Syd, 2011) CPH West gives also vocational and secondary education. Access to education is for persons who are employed in one of the railway undertakings or infrastructure managers, and is approved by the Transport Authority. (CPH West, 2011)

In Denmark majority of people employed by the railways belong to Danish Railway Association (Dansk Jernbaneforbund). The labour union has approximately six thousand active members and five and half thousand retired members. DJF belongs to the Danish Confederation of trade unions (LO), which has altogether 1.2 million members in 17 member unions. (DJF, 2011; LO, 2011)

3 Commuter and Long-Distance Passenger Rail Transport

Passenger rail transport has confronted changes during the last decades. Although it has been widely known that the transportation accessibility influences for example household and firm location, land prices and estate development, nowadays one of the most important concerns in metropolitan planning is the transportation improvements' impact on urban development. According to Waddell et al., (2007), political and institutional context of metropolitan planning incurs impediments which might be as challenging as the technical barriers. Overall, public transport is noted as one of the vital elements in creating sustainable cities which are easily accessed and environmentally friendly when considering the energy consumption. More people are moving far away from the workplace, which has a direct effect on the commuter transport. If transport is not well organized, people are utilizing own cars. Particularly if the journey requires multiple transfers or is scheduled with low frequency, people are finding cars more convenient and public transport fails to attract potential users. However, it does not have a difference whether the public transport is bus or train. (Ben-Akiva & Morikawa, 2002; Ieda et al., 2001; Kingham et al., 2001; Waddell et al., 2007)

Pucher and Kurth noted already in 1996 that increasing auto ownership and suburbanization are creating problems to public transport. Because metropolitan areas are spreading out to suburbs, public transport confronts needs to expand services to broader area. Hao et al. (2009) examined the public transport and noticed the private car flow is influenced by public transport mixed with private cars. Based on their model, the residents of suburbs spend more on transport costs than the residents living in city centres. This can be explained by the fact urban residents have to choose from two options: Whether they prefer high transport costs and low land price (housing in suburbs), or low transport costs but high land prices (housing in centres). (Hao et al., 2009; Pucher & Kurth, 1996)

In order to change the daily transport habits of public, special attention should be paid on quality and efficiency of the public transport (Dell'Olio et al., 2011). Several studies have scrutinized the topic. Kingham et al. (2001) noted that persons who go to work by car would consider public transport if the service would be more efficient (more frequent, more reliable, better connections and more convenient location of stops), and operators would offer discount passes or tickets. Similar factors were unfolded in study carried out in Tbilisi, Georgia (Grdzelishvili & Sathre, 2011). Based on the results, 70 percent of respondents thought public transport could be made more attractive by lowering the ticket prices. As other important factors were noted vehicles' comfortableness, reliability and frequency and convenience to destination. Interestingly, 43 percent of respondents prefer more environmentally friendly public transport. Some national characteristics have also been unfolded: Ieda et al. (2001) studied the commuters in Tokyo, Japan and noted the passengers were more willing to pay extra to have a seat than to shortening the journey (by five or ten minutes). Therefore, passengers are willing to pay extra for improvements in train operations. Based on Dell'Olio et al. (2011) research, the most important ways to increase the satisfaction of public transport are reducing waiting times and improving comfort during the journey. Introducing information campaigns and strengthening the busiest lines during rush hours were noted consequential when attracting new passengers.

(Dell'Olio et al., 2011) Study conducted in Melbourne, Australia discovered complexity of trip chains was noticed to be larger for rail based (tram and train) transport modes than cars. Rail based public transport was stated to offer considerable opportunities to passengers, mainly due to increased shopping possibilities. Often train and metro stations attract clusters of services, which is considered important when linking the transport modes. (Currie & Delbosc, 2011)

3.1 History

According to Bartling (2010), development patterns which emerged with industrialization in the 1900s have a huge influence on the American and Canadian metropolitan landscapes. Earlier cities were built in a compact form, whereas during the last decades the North American metropolitan areas have expanded significantly. The main reason has been changing technologies and increases in population resulting from immigration. Once mechanized forms of mobility such as trains and streetcars were introduced, regions around the cities became accessible. Good accessibility together with pressures of population created possibilities to develop the suburbs of cities. Additionally, expanding adoption of cars during the first decades on 20th century disseminated the trend and ensued the decentralization in metropolitan areas. (Bartling, 2010)

In order to strengthen the knowledge in Europe, The Association of European Metropolitan Transport Authorities (EMTA) was created in 1998. Association's main objective is to exchange information and best practices between public authorities, who are responsible for planning, integrating and financing public transport services in the European metropolises. Today the association gathers 31 authorities, who are responsible for improving the transport connections of 70 million European city residents. (EMTA, 2010)

Passenger rail transport can be divided into two sub-groups: Long-distance and regional transport. Often as distinction criteria are noted type of service and profitability. When utilizing the type of service, under term long-distance is included Intercity, Eurocity, high-speed as well as night trains. Commuter, local and regional traffic is counted to regional transport. One of the regional transport's characteristics is that it provides superior performance compared with other transport modes, due to increased road congestions (De-Los-Santos et al., 2010). When considering travel distance, the radius of regional traffic has increased during the last decades, as people are moving further away from working places. The commuter traffic creates daily two peaks: In the morning concentration is on inbound trains and afternoon vice versa. Other characteristics of commuter traffic are frequent stops and some sort of multi-ride reduced price systems, as most of the commuters travel five times a week. (Due, 1997) As well as regional transport, long-distance transport depends on country's characteristics. Also the areas make a difference, as nearby capital region commuter traffic is wider than in countryside. Third possible way to distinct the passenger rail transport types are profitability. Urban, local and regional transport is generally characterized by provisions received from the state. By subsidizing the commuter transport, the operator can sell tickets at a price below cost recovery, due to the fact the transport nature is a public service obligation. In order to minimize the amount of subsidies, few European countries (for example Germany, UK, the Netherlands and Sweden) are using competitive tendering. Compared to regional

traffic, long-distance transport can differentiate through various service classes, onboard services and so on. (Alexandersson & Hulten, 2009; Beckers et al., 2009)

Among passenger rail markets one of the most successful aggregates has been high-speed railway lines. According to Union of International Railways (UIC, 2010), high speed rail signifies rail operations of at least 250 km/h. Among their main characteristics is the fact they run through densely populated areas, connecting the countries' main cities. (Nakagawa & Hatoko, 2007) The first high-speed railway line was introduced in Japan in 1964, when the Tokaido Shinkansen started the operations. (Matsumoto, 2007; Nagakawa & Hatoko, 2007) The line linked a 515 km long way from Tokyo to Osaka, and enabled a travel time of three hours ten minutes. Since, the travel time has even shortened and five more Shinkansen lines have been opened, latest one connecting Tokyo and Aomori in December 2010. Shinkansen has accumulated a great success: Today 400 000 passengers travel daily on Tokaido Shinkansen. (Hsu et al., 2010; JR, 2011; Nagakawa & Hatoko, 2007; UIC, 2010) The success of Shinkansen highly impacted the worldwide introduction of high-speed railway lines. First country in Europe to launch high-speed railway line was France, where the connection between Paris and Lyon was introduced in 1981. Other European countries followed the trend: Italy introduced Direttissima in 1988, German ICE trains in 1991 and Spain AVE trains in 1992. One of the milestones was achieved in 1994, when the Eurostar travelling through the Channel Tunnel between France and England was opened in 1994. In USA the first high-speed train started the operations in 2000, when Acela Express was presented. Although Japan was the first country to introduce high-speed rail system, other East-Asian countries followed only recently. Korea Train Express (KTX) in South Korea started operations in 2004, Taiwan high speed rail (THSR) system was opened in 2007 and China later 2000s. Today high-speed bullet trains are operating in almost all developed countries, and those have attracted significant number of passengers, especially in long distances. (Chou & Kim, 2009; Hsu et al., 2010; Nakagawa & Hatoko, 2007) According to UIC (2010), when travel time by train is less than 2.5 hours, high speed trains obtain 80 percent of modal split in proportion to air transport. Based on research of Chou and Kim (2009), in order to maintain the competitive advantage, attention needs to be paid especially to quality improvement. It is noted as a key to firms' growth. Furthermore, once operators are able to gather loyal customers, they are more likely to continue using the service and recommend service to other possible passengers. (Anderson & Fornell, 2000; Chou & Kim, 2009)

3.2 European Union

In several European Union member countries the long-distance passenger rail market is still dominated by the state-owned incumbent. In various countries the incumbent still is the only operator, but some divergences between countries are visible. Furthest in liberalizing the long-distance transport has gone UK, where several operators are active on the routes. Usually the routes are tendered by the UK Department for Transport and operated by private railway undertakings. Although operators are working under their own brands, they offer a common Internet platform called "National Rail" through the Association of Train Operating Companies. (National Rail, 2011) In UK there is no publicly owned operator, but some operators who are active in UK are partially owned by foreign incumbents, for example Wrexham & Shropshire is

a joint venture of Renaissance Trains, UK and DB, Germany. (Beckers et al., 2009; Nash & Smith, 2007; Wrexham & Shropshire, 2011)

In Germany the market situation changed in December 1993, when the Deutsche Bahn AG (DB) was created. In addition to defining the new regulatory framework, this opened the access for other railway undertakings to DB's infrastructure and set the federal states responsible for regional passenger services from 1996. The regulation framework divided the passenger rail transport into two markets: Regional and long-distance services. Besides the length of operating area, the main differences between the service types were the regional service received subsidies in order to cover the operating costs, and the competition occurred mainly via tendering. Long-distance services were run without public funding and competition was based on open access. (Séguret, 2009) Due to different regulation forms of the long-distance and regional transport, DB's competitors' market shares differ significantly. In regional traffic 18.4 percent of market is operated by private companies, whereas the equivalent in long-distance traffic is only one percent. More than hundred concessions have been awarded to regional transport, whilst long-distance traffic has confronted only dozen attempts, often surviving only few months. One example of somehow successful long-distance operations outside DB is French Keolis, a subsidiary of the French incumbent SNCF is active in German long-distance passenger rail market. However, the entry to neighbour market might cause problems. Since 2007 DB and SNCF have had a joint venture and trains have been operated between France and Germany. Due to Keolis entry to German market, this might be jeopardized. (Beckers et al., 2009; Séguret, 2009; the Economist, 2010)

The European long-distance rail market is confronting changes. Directive 91/440 authorized an opening for international groups. Basically this means any association of two or more railway operators from different European Union member countries whose purpose is to provide international transport services can enter the markets. In the countries where is the exclusive right of the incumbent, the Directive states only the international services are opened for competition. (Beckers et al., 2009; Directive 91/440; 1991)

On form of long-distance transport is high Speed rail system, which in Europe like other countries is providing further possibilities. According to UIC (2010), by the end of year 2010, around the world were in operation 2 102 high speed train sets. When compared the discrepancies between the continents, Europe is prospering: 59 percent were operating in Europe, 40 percent in Asia and only one percent in North America (see table 1).

Table 1 Number of high speed trains around the world (Adapted from UIC, 2010)

Continent	Number of high speed trains
Asia	839
Europe	1243
North America	20
TOTAL	2102

As the international passenger rail markets were deregulated based on European Union legislative demands on 1st January 2010, there exists various types of international traffic. Alike in other continents, the high-speed rail market has increased strongly during the last years. Especially this has been noted in Central Europe, for example in France and Germany, where cross-border infrastructure enables the development of attractive international services. Once the high-speed trains have conquered the markets, the market share of slower long-distance trains has declined. In smaller distances Intercity and Eurocity trains cover the core network between the cities. Especially the trains operating night time confront strong competition from low-cost airlines and low-priced busses. As borders are not normally densely populated, regional transport's international market is relatively small. In these cases international Public Service Obligation (PSO) contract is utilized in order to cover the operational shortfalls. (TREN, 2010)

Due to increased number of rail services congestion is creating problems around Europe. Although recent recession attenuated the transport volumes and provided more free space on tracks, especially the main junctions are heavily congested. Major part of railway investments around Europe has been directed to new high-speed lines, which has created problems to other parts of the network. In Germany main junctions are heavily congested and long-distance and regional traffic is forced to operate in congested network sections. In UK was noted that if the competitors are forced to use the same track, this might lead to sub-optimization of the utilization of the rail network by operating too short trains, which creates quality problems for the passengers. Respectively, Swedish railway passenger market has confronted similar situations, where traffic control has been forced to use administrative rights to decide whether high-speed or regional train has priority on a congested line. (Alexandersson & Hulten, 2009; Beckers et al., 2009; Nash & Matthews, 2003)

Although the passenger rail market confronts various challenges, the reforms have provided positive consequences. According to Séguret (2009) in Germany the reform process noted competition is a good way to increase systems' efficiency. In UK passenger rail franchising was considered a moderate success on the demand side, which on the other hand has failed to achieve the goals on the cost side. (Nash & Smith, 2007)

3.3 Sweden

Although Sweden was among the first countries to deregulate the railway freight market in 1990s, the progression in passenger rail has not been as onward. During last years the country has taken actions in order to update the market situation also on the passenger side. Although the progress started already in 1988 by the Transport Policy Act, some real acts were noted when the state negotiator got a right to use competitive tendering in 1993. However, the first company entered the market via tendering only in 1999, due to incumbent's actions to hinder the market entry. In 2007 the incumbent SJ lost its monopoly on night trains and charter trains. The completely free access was confronted on 1st October 2010, a railway undertaking having its registered office in EES or Switzerland was entitled to operate passenger rail services in Swedish network. (Alexandersson & Hulten, 2009; SJ, 2010; the Network Statement, 2010)

Table 2 *Number of journeys in Swedish public transport per transport mode, million journeys (SIKA, 2010)*

Year	Bus	Metro	Tram	Train	Ferry	Total
1999	580	273	88	105	-	1 053
2000	592	284	91	103	-	1 078
2001	601	283	95	111	-	1 098
2002	601	283	96	115	8	1 103
2003	610	279	101	120	8	1 117
2004	609	278	108	118	7	1 121
2005	608	276	110	124	8	1 126
2006	635	297	114	131	8	1 185
2007	640	303	122	142	7	1 214
2008	658	306	123	156	8	1 250
2009	660	307	124	151	9	1 251

As presented in table 2, the mostly utilized mode of public transport is bus. This can be explained by the fact it is available countrywide, whereas metro is located only in Stockholm. Stockholm County Council is responsible for public transport in Stockholm, and they also own Storstockholms Lokaltrafik which is responsible for the metro system. The metro system was previously operated by Veolia, but MTR Corporation won the tender in 2009 and started the operations 2nd November 2009. MTR Corporation is a Hong Kong based company, which is operating metro systems for example in London and Hong Kong. (NCE, 2009; SCC, 2010) Tram is utilized in three cities, Stockholm, Gothenburg and Norrköping (Göteborg, 2011; Norrköping, 2011; SL, 2011). Tram has been the only transport mode increasing the amount of journeys annually, while other options have faced some minor decreases during 2002-2004. When comparing the year 1999 and 2009, all transport modes have significantly increased the amount of journeys. Table 3 illustrates the situation in passenger rail transport.

Table 3 *Transport performance, passenger rail traffic, million passenger kilometres (Trafikanalys, 2010)*

	Regional traffic	Long-distance traffic	Total
1980	1787	5211	6998
1985	1952	4959	6911
1986	1871	4700	6571
1987	1796	4637	6433
1988	1893	4776	6669
1989	1984	4663	6647
1990	1978	4622	6600
1991	1914	4071	5985
1992	2021	3942	5963
1993	2098	4324	6422
1994	2127	4380	6507
1995	2241	4591	6832
1996	2339	4614	6953
1997	2558	4464	7022
1998	2651	4560	7210
1999	2812	4889	7701
2000	3009	5234	8243
2001	3191	5541	8732
2002	3324	5551	8874
2003	3398	5436	8834
2004	3446	5212	8658
2005	3723	5213	8936
2006	3936	5680	9617
2007	4233	6027	10261
2008	4665	6481	11146
2009	4896	6444	11340

Table 3 illustrates the development of Swedish passenger rail traffic from 1980 to 2009. Between 1980 and 2009 the transport volumes increased 38.3 percent in terms of passenger kilometres. When the development is evaluated between years 1995 and 2003, other transport modes are lagging behind when evaluating the amount of growth in terms of passenger kilometres. The increase has been especially strong in regional (short-distance) transport, which grew 63.5 percent while long-distance transport increased by 19.1 percent. Therefore the market share of regional traffic has sharpened from 25.5 percent (1980) to 43.2 percent (2009). (Alexandersson & Hulten, 2009; Trafikanalys, 2010) Figure 5 illustrates the growth of regional traffic.

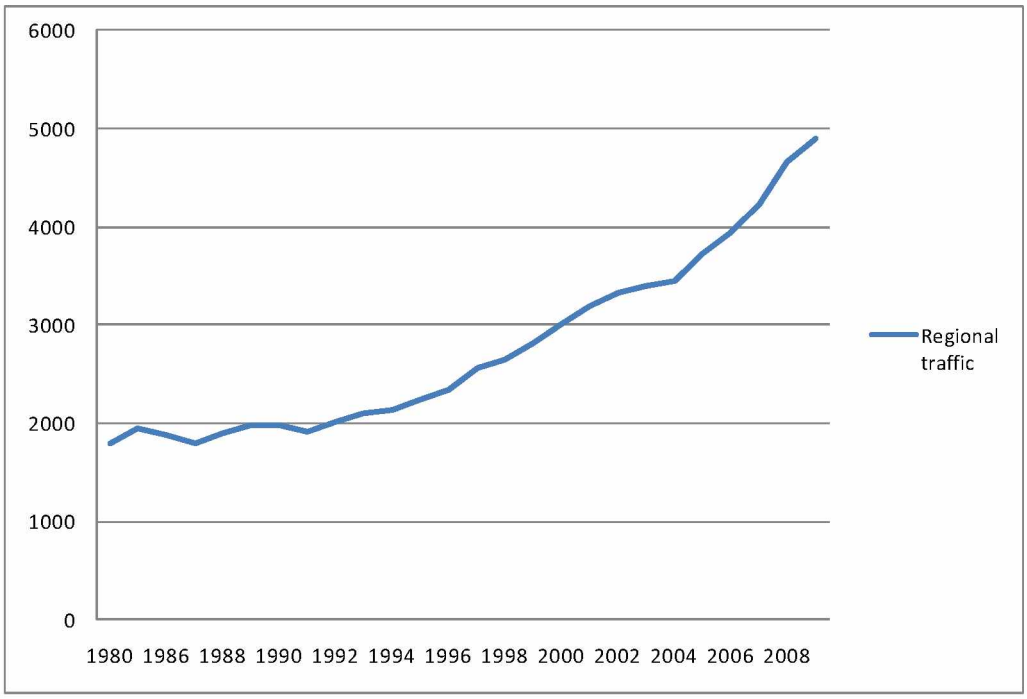


Figure 5 *Regional passenger transport in Sweden 1980-2009, million passenger kilometres (Trafikanalys, 2010)*

When comparing the amount of performed journeys in railway, the increase has been relatively expeditious during 2005-2009: The number of journeys increased 14.3 percent from 150 million to 175 million. The peak was attained in 2008 when total amount of journeys done with railway was 179 million (see table 4).

Table 4 *Number of journeys in railway transport in Sweden, millions (SIKA, 2010)*

Year	Q1	Q2	Q3	Q4	TOTAL
2005	38	37	35	41	150
2006	39	39	37	44	159
2007	42	41	39	47	169
2008	45	45	42	47	179
2009	44	44	41	46	175

The great amounts can be explained by the fact 42 percent of SJ's customers are using train for commuter traffic. Leisure travellers' market share is 44 percent, whereas business travellers' share of passengers is only 14 percent. Every day over 100 000 passengers utilizes SJ's services, which also describes how large market share the incumbent still possesses. (SJ, 2010; SJ, 2011) Besides SJ, in Sweden operates other long-distance operators. SJ has decided to operate the profitable routes on its own account, but routes which SJ has refused to operate, the state has organized competitive tendering processes in order to find the most cost-effective operator. Therefore, there are several active railway operators, although the majority of the transport services are offered by SJ. Previously private operators were allowed to participate in the market only via winning tenders and introducing night, holiday

and weekend services, but recently the situation changed when the market was wholly opened in October 2010. (Alexandersson & Hultén, 2009; Beckers et al., 2009; Transportstyrelsen, 2010)

Previously the partially deregulated Swedish passenger rail market was constituted by three types of markets. The types are:

1. Monopolies on commercially attractive lines and networks
2. Competitive tenders for the non-profitable lines, either
    a. gross cost contract
    b. net cost contract, and
3. Competition on the network of commercial lines. (Alexandersson & Hulten, 2009)

The intention was to reshape the system into a more aggregated model, where market actors would be competing to operate commercially attractive slot times, networks and lines, replenishing the competitive tendering of all the railway operations which are noted un-profitable by market actors but valued socio-economically by the society. (Alexandersson & Hulten, 2009) This is illustrated in table 5.

Table 5 *Regulatory structure of the Swedish railway sector in 1988, 2008 and the projected structure after new legislation (Alexandersson & Hulten, 2009)*

Part of market	1988	2008	2010-2012
Regional (non-profitable)	SJ holds monopoly and receives subsidies	Procurement of gross cost contract by competitive tendering (competition *for* the tracks)	Procurement of net cost contracts by competitive tendering (competition *for* the tracks)
Regional (profitable)	SJ holds monopolies	A-train has a monopoly on the Arlanda line. SJ has a monopoly contract in the Mälardalen region	Competition on the tracks
Inter-regional (non-profitable)	SJ holds monopoly and receives subsidies	Procurement of net cost contracts by competitive tendering (competition *for* the tracks)	Procurement by competitive tendering (competition *for* the tracks)
Inter-regional (profitable)	SJ holds monopoly	SJ holds monopoly	Competition *on* the tracks

As illustrated in table 5, the situation has changed between 1988 and 2008, and the situation is estimated to develop even further. Due to the fact Swedish market was deregulated only few months ago, the current situation is a bit unclear. Therefore, only the projected structure is presented. In 1988 SJ held monopoly in all parts of market. Although there were not discrepancies between the regional and inter-regional (long-distance) traffic, SJ received subsidies only in non-profitable markets. Market progression is noted in year 2008, as the situation had changed significantly. The incumbent SJ had monopolies only in profitable inter-regional traffic and in profitable regional traffic in the Mälardalen region. A private operator A-Train had a monopoly on the Arlanda line, which connects Stockholm city and Stockholm Arlanda airport. Both regional and inter-regional non-profitable markets were tendered: The difference was regional market was procurement of gross cost contract, whereas inter-regional was net cost contract. The expected changes which are estimated to take place in 2010-2012 are rather significant, all monopolies are decontrolled which

enables the competition on the tracks. Regional non-profitable markets will change from gross cost contract to net cost contract, whereas the inter-regional non-profitable market is done via tendering.

Swedish rail network consists of around 12 000 kilometres; approximately 90 percent is electrified (Trafikverket, 2010). Sweden has a long network, as respectively in other Nordic countries the figures are Norway 4159 kilometres, Denmark 2667 kilometres and Finland 5919 kilometres (Jernbaneverket, 2010; Statistics Denmark, 2010; the Finnish Transport Agency, 2010). Therefore Sweden has a competitive edge. As the passenger rail market was opened for competition in October 2010, the reconstruction will change the whole nature of the Swedish passenger rail market. Table 6 presents the companies who have operated in the Swedish market in 2009. (Transportstyrelsen, 2010)

Table 6 *Swedish passenger rail market's market shares (Transportstyrelsen, 2010)*

Railway undertaking	Sales / kr	Market share 2008	Market share 2007
SJ AB	7 420 000 000	71,2	69,9
Stockholmståg KB	1 337 728 000	12,8	13,7
A-Train AB	534 747 000	5,1	5,1
Veolia Transport AB	318 457 000	3,1	5
Svenska Tågkompaniet	270 881 761	2,6	2,4
Arriva Tåg AB	258 754 000	2,5	1,6
Roslagståg AB	231 636 000	2,2	2
Inlandsbanan AB	32 403 949	0,3	0,2
DSBFirst Sverige AB	19 338 591	0,2	0

The Swedish passenger rail market is dominated by SJ (see table 6). The situation is due to the fact at that time the incumbent still had a monopoly in long-distance areas. Interestingly, SJ and Arriva were able to increase the market shares in 2008, whereas the portion of Stockholmståg and other local operators decreased slightly. The situation in 2010 (January – November) in gross ton kilometres is illustrated in table 7.

Table 7 *Swedish operators percentual market share per gross ton kilometres, January-November 2010 (Pers.Com. Hans Wolf, 21.1.2011)*

Operator	Gross ton km, Jan-Nov 2010
SJ AB	64,1 %
DSB First	14,2 %
Stockholmståg KB	12,9 %
Svenska Tågkompaniet AB	3,6 %
A-Train AB	1,5 %
Veolia Transport Sverige AB	1,1 %
Tågkompaniet	1,1 %
Arriva Tåg AB	0,4 %
Kalmar Länstrafik AB	0,3 %
Tågåkeriet i Bergslagen AB	0,3 %
DSB First Sverige AB	0,3 %
Östgötatrafiken AB	0,2 %

When comparing the market shares of January – November 2010 in gross ton kilometres, SJ is still dominating the market with 64.1 percent (see table 7). DSB First and Stockholmståg are following with 14.2 and 12.9 percents, respectively. Other companies' market shares in gross ton kilometres are rather minimal, but because the market was deregulated in October 2010, situation might change in the future. Already today private railway undertakings are operating various lines in Sweden (see figure 6). From the six main private railway undertakings (excluding companies operating in Stockholm area), four are working in rather limited areas: Tågåkeriet is operating the network between Göteborg and Karlstad (light blue) and Arriva Tåg has operations in South Sweden (red lines), mainly Malmö - Helsingborg area. DSBFirst connects Sweden and Denmark, and operates in the areas nearby Malmö (green lines). Inlandsbanan runs trains between Gällivare and Kristinehamn; an interesting characteristic is the fact that service between Mora and Filipstad is operated by bus (mauve). Two private railway undertakings have expanded the services to a wider area, as Veolia operates between Malmö and Åre (blue), and Svenska Tågkompaniet has trains running in Central Sweden (black lines).

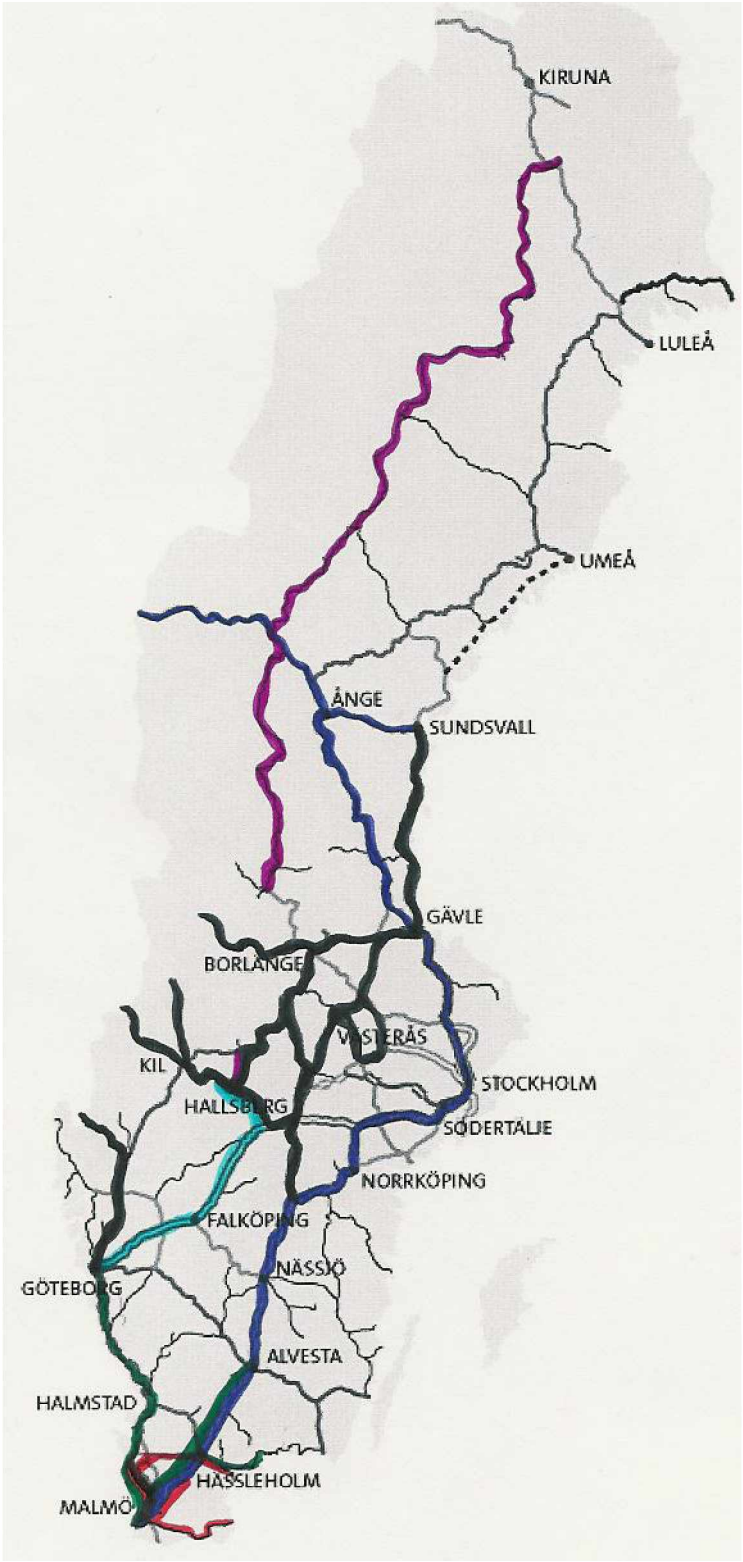


Figure 6 *Lines operated by the private railway undertakings in Sweden, excluding incumbent SJ and railway undertakings operating in Stockholm area (Arriva Tåg, 2011; DSBFirst, 2011a; Inlandsbanan, 2011; Svenska Tågkompaniet, 2011; Tågåkeriet, 2011; Veolia, 2011)*

In order to ameliorate the commuter traffic is large cities, Sweden has introduced two major projects. Stockholm City Line project's objective is to double the track capacity and therefore improve the frequency and punctuality of the trains. The line enables

commuter trains to run on their own tracks in a six kilometres long tunnel. Once the project is finalized in 2017, also the public transport integration should improve due to the fact that new line provides good connections both to metro and bus network. In addition to Stockholm area the line facilitates the whole passenger rail transport in Sweden, as eight out of ten journeys begin or end in Stockholm. (Trafikverket SCL, 2010) Another important project in Sweden has been the Malmö City Tunnel, which was opened for traffic on 4th December 2010. Tunnel's goal is to enhance the transport in South Sweden and provide better access to Öresund Bridge and Copenhagen. The tunnel converted Malmö Central Station from terminal station (all trains have to turn around) to modern through-traffic station. Project consisted of overall 17 kilometres, from which six kilometres were comprised two parallel tunnels with single tracks below Malmö city area. The tunnel provides increased lead-time to transport via Malmö, for example a trip to Copenhagen takes 10 minutes less than before. (Citytunneln, 2010; Skånetrafiken, 2010)

Generally Swedish market actors believe competition in the market enables a more efficient railway system compared to historical model with monopoly. In addition to nation-wide long-distance transport lines, the new system replaces regional monopolies held by County Public Transport Authorities (CPTAs). Trafikverket and CPTAs have been criticized to lack proper competence as officials, which are stated to explain some of the arguable outcomes in some tenders. Big operators have undermined the system by giving out low tenders in order to eliminate smaller competitors from the market. Sometimes these low bids have created great problems for the winning operator. Often the operators who have lost tenders have claimed the winning companies are cross-subsidizing from more profitable contracts or in the case of governmentally owned companies, utilize public subsidies to win contracts. (Alexandersson & Hulten, 2009)

3.4 Estonia

The Estonian railway history leads back to 1870, when the Estonian Railways was established. In 1940 the Estonian railways were incorporated into the network of the Soviet Union, but the situation changed in 1991 when Estonia regained its independence. As a result of reorganizing the Estonian Railways in 1996, on the grounds of incumbent were established few other operators. Market faced a second privatization in 2001 when 66 percent of Estonian Railways was sold to foreign investors; however, in 2007 Estonian government purchased the company back to its possession. (Estonian Railways, 2009; Hytönen, 2010)

Estonian rail network covers 1026 kilometres around the country (ECORYS, 2006). Unlike other Western European countries, Estonian market is currently mainly used as a transit route to Russian goods. The share of passenger services is rather low: In 2009 the operator carried approximately 4.88 million passengers, which states 7.5 percent's decline to year 2008 (see figure 7). The industry has confronted significant decline, the peak unfolded in 1993 with 16.7 million passengers, but since the trend has been declining, apart from slight increases in 2000.

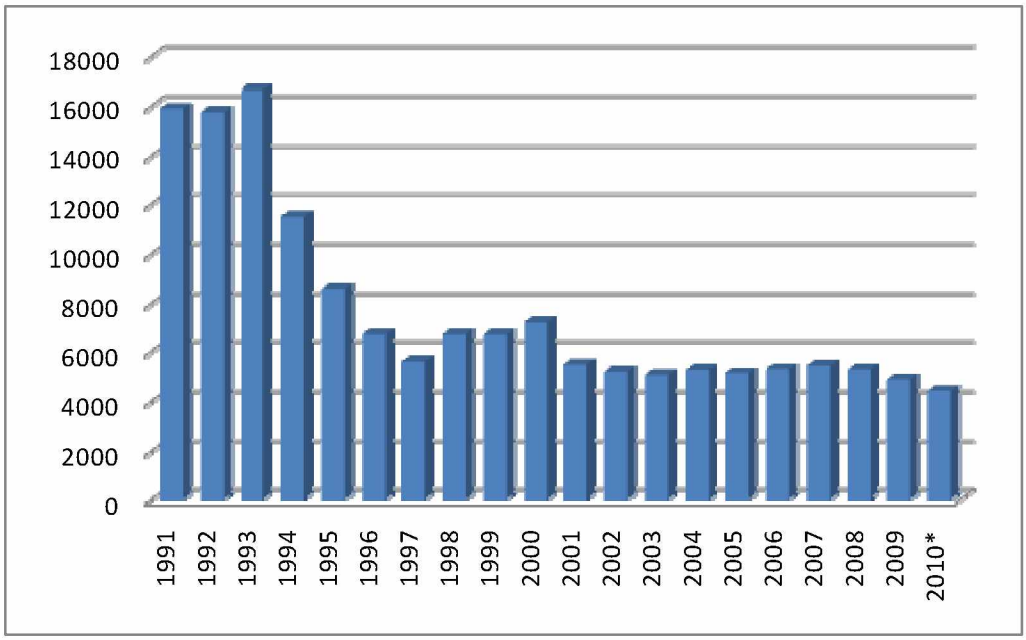


Figure 7 *Passenger traffic on railways in Estonia between 1991-2010, 1000 passengers (*fourth quarter is missing) (Statistics Estonia, 2010)*

Due to the fact Estonia is a rather small country with 1.3 million inhabitants, the only city which can be noted to have regional transport is Tallinn. Approximately 64 percent of Estonian public transport is performed in Tallinn: The total length of urban transport routes in Tallinn is 711 kilometres, of which trolley lines account for 76 kilometres and tram lines 39 kilometres. (ECORYS, 2006) However, the public transport planning has failed to combine the city area. According to UN Estonia (2009), the city of Tallinn and the surrounding county are planning the transport independently, which creates challenges in integrating the transport systems. Tallinn is the only city in Estonia where trams, trolleybuses and electric trains are operating. Although city and surrounding areas have been trying to attract people to use the public transport, the use of cars has been growing annually. (UN Estonia, 2009; VisitEstonia, 2011) Table 8 presents the ratio of using public and private transport is Estonia.

Table 8 *Ratio of using public and private transport in Estonia, percents (UN Estonia, 2009)*

	2004	2005	2006	2007
Private cars	*65,1*	*67,3*	*65,9*	*66,5*
Public transport total	*34,9*	*32,7*	*34,1*	*33,5*
Buses	20,6	18,4	19,1	17,9
Incl. Urban transport (buses)	4,3	3,2	3,4	3,4
Tram and trolleybus	2,0	1,5	1,5	1,6
Railway	1,6	1,7	1,7	1,8
Maritime	4,6	3,7	4,2	4,8
Air	6,0	7,5	7,5	7,4

As illustrated in table 8, private car is the most popular transport option in Estonia. 66.5 percent of year 2007 transport was performed by utilizing car. In public transport buses have the biggest share with 17.9 percent. Interestingly, utilization of busses has slightly decreased, while railway and maritime transport have gained market shares. When evaluating Tallinn's public transport by the transport mode, the decline is also visible (see figure 8). In Tallinn city area the total amount of land transport (excluding rail) consisted of 119 million boardings in 2008. Tallinn follows the same trend as other areas in Estonia, bus transport is the mainly utilized transport mode with 61 million boardings. Trolley and tram have been able to hold the market shares, only slight decrease during years 2004-2008 is unfolded.

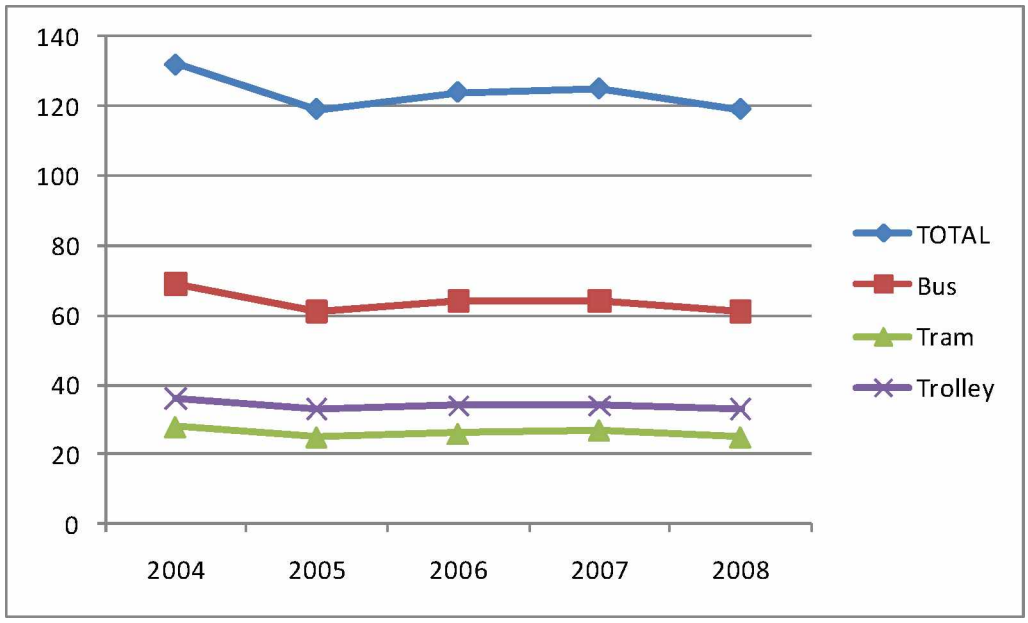


Figure 8 *Public transport by different transport modes in Tallinn (million boardings) (Tallinn City Government, 2010)*

Currently the passenger operations are divided between three companies, Edelaraudtee, Elektriraudtee and GoRail. Edelaraudtee is responsible for the long-distance passenger transport, which basically means the connections from Tallinn to main cities, Tartu, Pärnu, Viljandi, Orava, Narva and Valga (black lines in figure 9 below). Although railway transport has confronted declines in volumes, Edelaraudtee has been able to increase the annual volumes: In 2010 railway undertaking transported 1.8 million passengers, which is over three percent more than in year 2009. Especially high peak was noted in December figures, as the volume increased 8.6 percent when compared to 2009 December volumes. (Edelaraudtee, 2010)

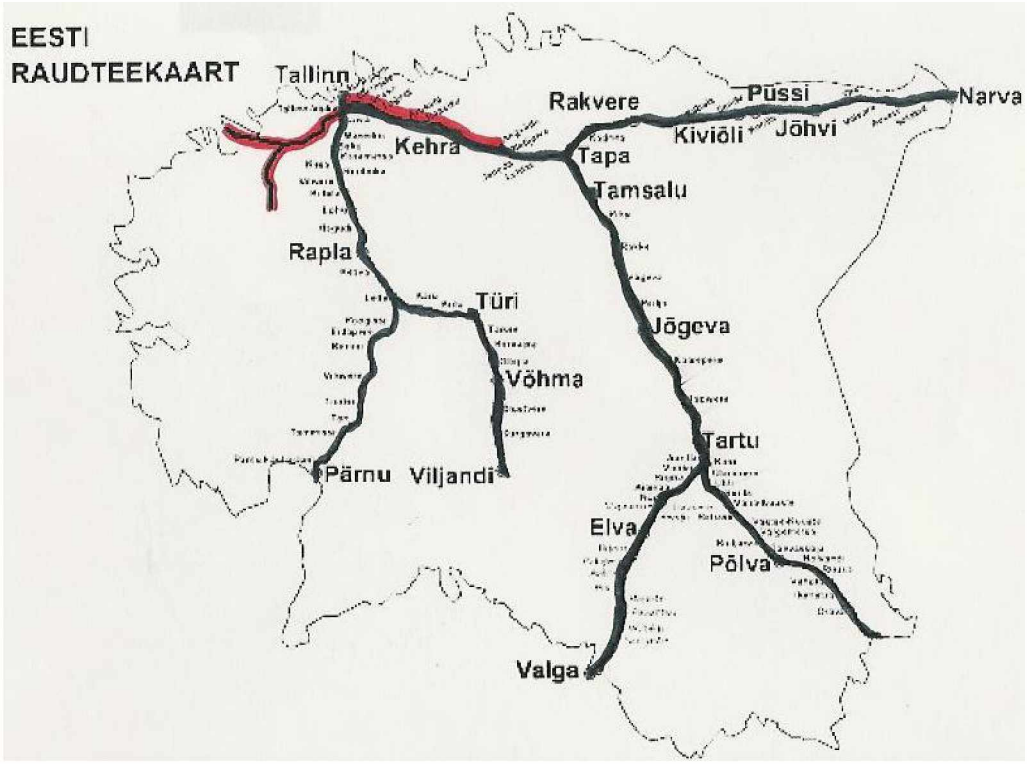


Figure 9 *Railway undertakings providing passenger rail transport in Estonia, excluding GoRail (Edelaraudtee, 2010; Elektriraudtee, 2010; GoRail, 2010)*

Elektriraudtee is responsible for the areas of Tallinn and Harju County (red area in figure 9), basically meaning the regional transport in the capital city's region. In 2009, volume of Elektriraudtee was 1.38 million train kilometres, which decreased two percent from previous year 2008. In the number of travels this means 3.08 million travels in 2009, which is six percent less than during year 2008. The company operates a network of 132 kilometres which is totally electrified, meaning connections from Tallinn to Aegviidu, Riisipere, Paldiski, Klooga-rand, Keila and Pääsküla. (Elektriraudtee, 2010) The third operator is GoRail, which is providing passenger transport services from Tallinn to Moscow. The trains are operated daily, which enables a smooth connection with neighbouring country. (GoRail, 2010)

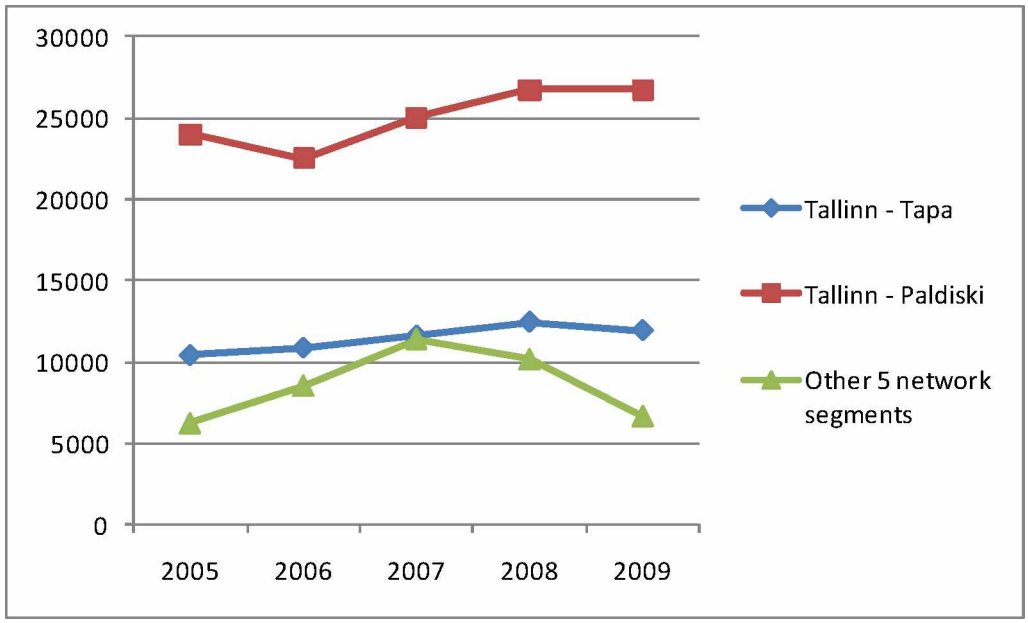


Figure 10 *Number of passenger trains, commuter and long-distance passenger transport (Tallinn City Government, 2010)*

Figure 10 illustrates the development of commuter and long-distance passenger transport in Estonia. Tallinn–Tapa and Tallinn-Paldiski are commuter lines, whereas "other five network segments" includes connections between Tapa-Tartu, Tartu-Valga, Tapa-Narva, Tartu-Petseri and Valga-Petseri. As represented in figure 7, both commuter lines have confronted increase while long-distance transport has been declining by significant 41.4 percent from 2007 to 2009.

3.5 Denmark

The transport market in Denmark is rather centred in cars. Based on Statistic Denmark's data (2010) which compared the transport performance in years 1998 and 2008, car has kept its dominant position with 77 percent (see figure 11). Bus is the most utilized public transport mode with constant nine percent, but situation might change in near future: Train transport has been able to increase the market share from seven to eight percent between 1998-2008. Although the figures for bicycling have been declining, the transport performance increased in 2008 when every Danish person on average cycled 420 kilometres. Especially this is noted in Copenhagen, where only 32 percent of families own the car, while the corresponding figure for whole Denmark is 59.6 percent. On average every Dane travels daily 40 kilometres, which might be explained by increased distance between home and work/education. (Statistics Denmark, 2010)

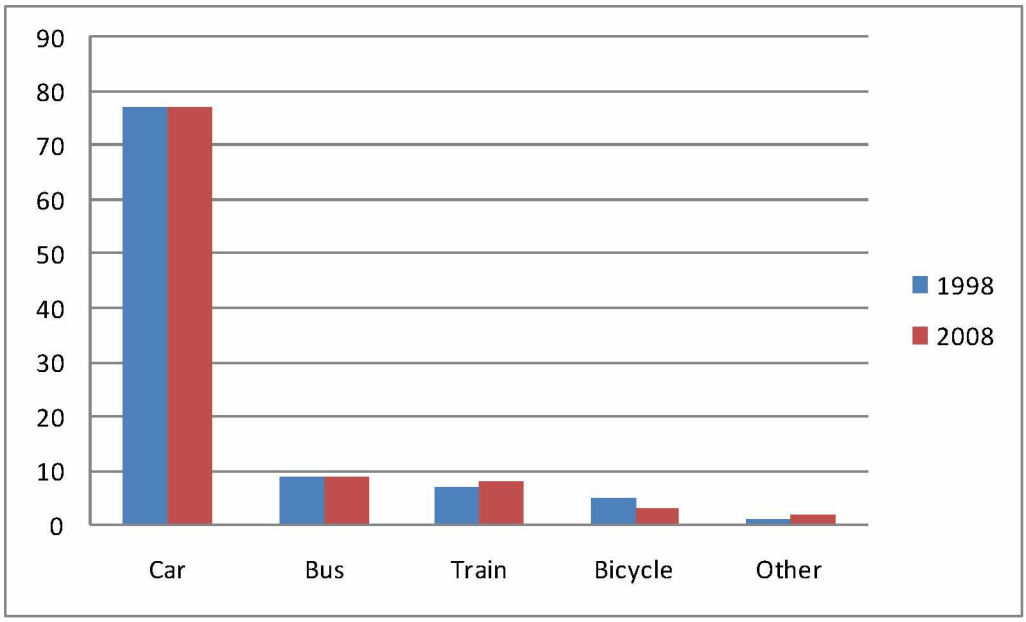


Figure 11 *Passenger transport performance in Denmark, percents (Statistics Denmark, 2010)*

The length of Danish rail network is 2 667 kilometres, of which the greatest part is managed by the state-owned Banedanmark. Regional railways are operating 514 kilometres of network; additionally, Copenhagen metro network is 21 kilometres long. The ratio of electrification of the rail network in Denmark is rather low when compared to other European countries (Jernbaneverket, 2010; the Finnish Transport Agency, 2010; Trafikverket, 2010). Around 25 percent of the network has been electrified, while the corresponding figures in other Nordic countries are Finland 51.8 percent, Norway 61.4 percent and Sweden approximately 90 percent. (Statistics Denmark, 2010) As in other Western countries, Danish passenger rail market has been divided into regional and long-distance passenger transport markets. The regional transport is concentrated on Copenhagen area, where a subsidiary of DSB, DSB S-Tog is operating the closed network. As other regional traffic can be noted Arriva's operations in Middle Jutland: Although Arriva is operating in a larger area, part of the services can be noted as regional traffic of Aarhus. Table 9 describes the passenger rail traffic in Denmark (excluding privately owned networks).

Table 9 *Passenger rail traffic in Denmark excl. private networks, million train km (Statistics Denmark, 2010)*

	2006	2007	2008
Passenger rail traffic, total	68,6	66,9	70,2
S-Tog	15,7	14,9	15,3
Copenhagen Metro	4,4	4,5	5,0
Passenger trains on Banedanmark's network	48,5	47,5	49,9

Table 9 confirms the data presented in figure 11, the volumes of railway passenger traffic have increased. In 2008 passenger market volume was 70.2 million train

kilometres, by increasing 4.7 percent from year 2007. Commuter train system, S-Tog had a market share of 21.8 percent with 15.3 million train kilometres in 2008, while another rail mode in capital area, metro was able to attract only 7.1 percent. However, it has to be kept in mind Copenhagen Metro was opened only 2002 (Copenhagen Metro, 2011). Long-distance transport is the major passenger rail mode in Denmark, counting as 71.1 percent of journeys. When comparing the amount of passengers, commuter traffic increases its market share (see table 10).

Table 10 *Passenger amounts in railway transport 2009-2010, 1000 passengers (DSB, 2010)*

1000 passengers	2009Q3	2009Q4	2010Q1	2010Q2	2010Q3
Railway network, total	57 699	61 349	58 908	58 937	57 241
Network managed by Banestyrelsen	43 455	45 002	42 683	43 765	42 515
S-Tog	22 088	24 047	23 374	23 433	21 285
National network, total	18 025	17 987	16 813	17 450	18 151
East of Great Belt	10 797	10 278	9 682	10 411	10 646
West of Great Belt	5 118	5 538	5 257	4 939	5 385
Across Great Belt	2 109	2 171	1 873	2 100	2 120
Copenhagen metro	11 400	13 600	13 500	12 400	12 000
Other railway networks	2 845	2 747	2 725	2 772	2 726
International traffic, total	3 342	2 969	2 496	2 882	3 078
Øresund trains	3 025	2 777	2 336	2 635	2 838
Other international trains	317	192	160	247	240

Table 10 presents the amount of passengers in Danish rail market. During the last months passenger amount of total rail network has declined, especially the rail traffic in Copenhagen area (S-Tog and Metro) confronted decrease during the third quarter 2010. However, the market share of S-Tog was in third quarter 37.2 percent. Due to a small size of the country, the trains' concentration is really high. In 2008, daily 200 trains were operated in nine sections. Seven sections were located in Copenhagen region: The mostly operated route was Copenhagen – Østerport with 445 daily trains during weekdays. Østerport station is mainly used by S-Tog, but also Kystbanen and other regional, as well as some Intercity trains stop at the station (Resumérapport, 2005). Other sections are operated by more than 20 days by day; 124 passenger trains are crossing the Great Belt every weekday. (Statistics Denmark, 2010)

Table 11 *The average train products of railway undertakings in Denmark in 2010, excluding private rail networks (Pers.Com. Kim Feldborg, 25.1.2011)*

Operator	Average percentage in 2010
DSB	55,7
Arriva	17,6
DSBFirst	25
SJ	1,7

Table 11 presents the average train products of railway undertakings operating in Danish rail network (railway undertakings operating in private rail networks are excluded). The incumbent DSB has the largest share 55.7 percent. DSBFirst operating the Kystbanen has 25 percent share. Arriva has gained 17.6 percent share, while Swedish incumbent has only 1.7 percent. The areas where private railway undertakings are operating in Denmark are presented in figure 12.

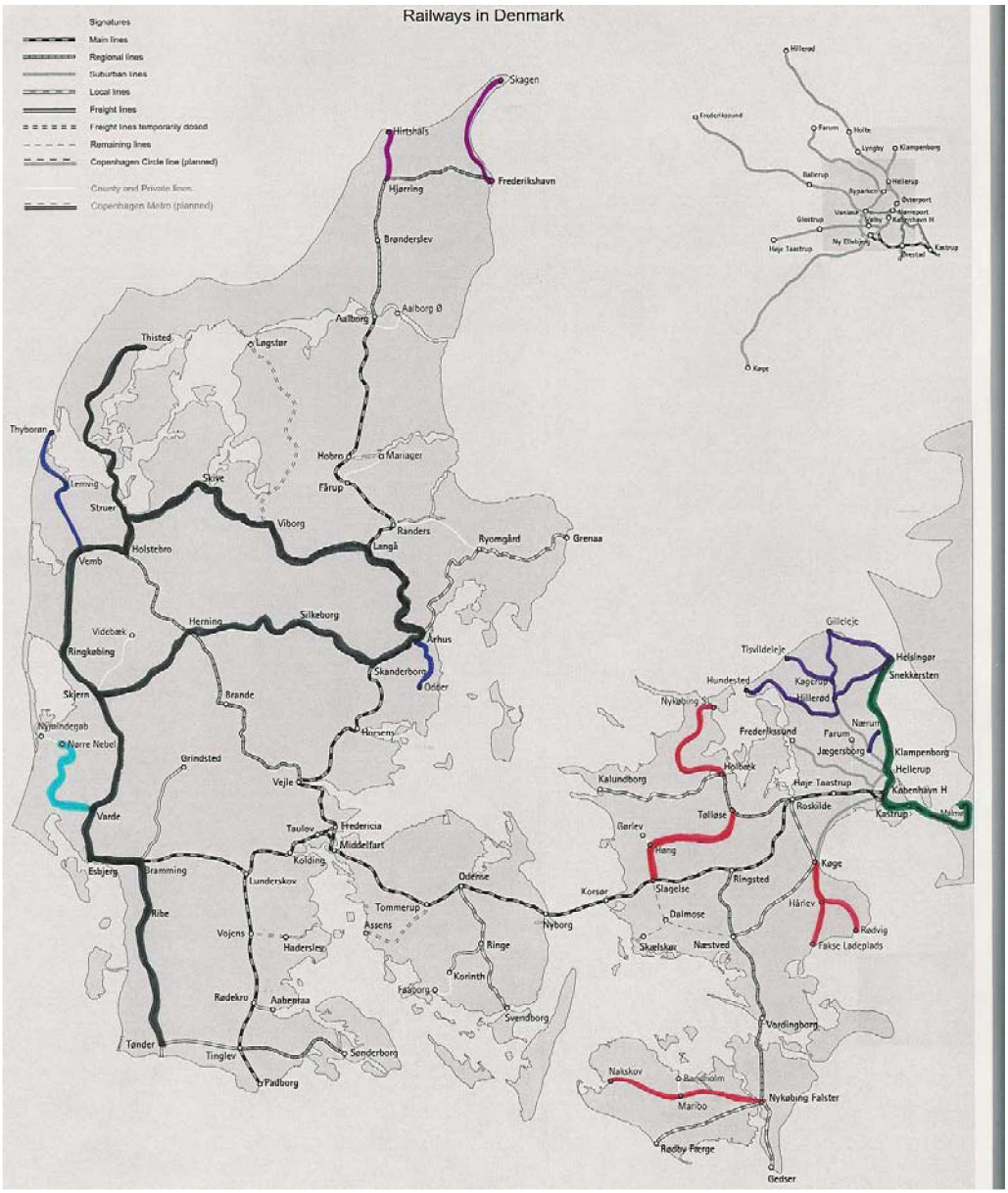


Figure 12 *Private railway undertakings operating in Denmark, excluding incumbent DSB (Arriva, 2011; DSBFirst, 2011b; Lokalbanen, 2011; Midtjyske Jernbaner, 2011; Nordjyske Jernbaner, 2011; Regionstog, 2011; Vardebanen, 2010)*

Kystbanen which is operated by DSBFirst is marked with green colour, it connects Denmark with Sweden. Arriva is operating in rather large network in Jutland (black lines). Other five operators are the privately owned railway undertakings owning also the network. These are Lokalbanen (mauve, north from Copenhagen), Regionstog (red), Vardebanen (light blue), Midtjyske Jernbaner (blue) and Nordjyske Jernbaner (lilac in north Jutland).

4 Research Environment and Data Gathering

4.1 Research Approach

As described in chapters 2 and 3, the researched markets vary in the level of deregulation. While Estonia deregulated the market already in 1990s and Sweden finalized the process in 2010, Denmark is lagging behind by allowing the private operators to enter the governmentally owned network only via tendering processes. This has a great influence on the number of operators in the markets. Already for years Estonian market has been based on three passenger operators, whereas in addition to incumbent SJ, Swedish market has attracted already 12 operators. Danish railway market has a strong history of private networks, which is visible also in today's market structure. Five privately owned networks and operators are operating in certain small areas. In addition to incumbent DSB, operating contracts have been given to two companies. Due to the fact the research's main intention was to gather genuine data from grassroots level, a semi-structured theme interview was chosen as an interview type. Based on Hirsjärvi et al. (2009) experiences, performing a test-interview themes' adequacy can be confirmed and interview's duration can be verified. Furthermore, due to the fact the research's intention was also to understand the standpoints of the passengers, in addition to semi-structured theme interview a survey was conducted. As the objective was to gather comments from people using rail transport and especially commuter traffic, the survey was organized in three main railway stations in the case countries.

While conducting a study, although the researchers avoid making mistakes, the results' validity and reliability might range. Therefore, the reliability of every conducted interview should be impugned. According to Hirsjärvi et al. (2004), repeatability of the results confirms the reliability. This means if the same study is duplicated, the results are uniform. By paying special attention to validity the indicators or research method's ability to measure the demanded factors can be guaranteed. Sometimes there might be misunderstanding in questions, particularly if language barriers hinder the process. (Hirsjärvi et al., 2004)

In this research, reliability was confirmed by recording all interviews, which ascertained the availability of repetition. As the party conducting the research, Lappeenranta University of Technology's Kouvola Unit has done similar interviews previously, the validity of the questionnaire was checked already in earlier studies. However, in order to have all interest groups' viewpoints, questionnaire was carefully discussed in project's steering group meeting, which guaranteed correct questions were asked from relevant interviewees. When the survey form was constructed, examples were gathered from previous customer satisfaction surveys. Additionally, as the intention was to understand the passengers' standpoints, survey form was checked by organizing few test rounds.

Due to the fact Lappeenranta University of Technology's Kouvola Unit had conducted previous researches earlier, there was a certain knowledge about the market actors. As the intention was to understand the standpoints of unions' and national authorities' in addition to operators, and in order to confirm all relevant parties were contacted, few publications presenting the actors were scrutinized. Once the most important actors' names were known, further contact details were gathered and

checked. All groups were contacted by sending an email with a cover and information letter (see appendix 1 and 2). Swedish and Danish actors were contacted in Swedish and English, whereas in Estonia English version was used. E-mail was sent to 10 Swedish (appendix 8), 14 Danish (appendix 9) and seven Estonian (appendix 10) organizations. In the cases where actors did not return to original e-mail, a reminder was sent three days later. If still no answer was received in one week after the original contact, actors were contacted by phone in order to confirm all intended participants were reached. In few cases the correct contact person had not seen the information letter, which was resent in order to give the respondents a possibility to familiarize with the research before actually agreeing to participate in the research. All interviews were agreed by e-mail. Few days before the agreed meeting time the questionnaire (appendices 3, 4 and 5) was sent to interviewee, in order to give time to prepare. In the same email the place of interview was confirmed once more, in order to have a solid knowledge where the meeting was to take place.

4.2 Theme Interview

Theme interview is a combination of structured and open interview, where quintessentially the themes discussed are known but a certain order and strict form of questions is lacking. The method was introduced by Merton, Fiske and Kendall 1956 in their book "The Focused Interview". Based on their findings, theme interview has four characteristics: 1) interviewees have experienced a certain phenomena, 2) researcher has preliminary knowledge about the subject: Its sections, structures, processes and entity 3) researcher settles a framework for interview, and 4) interview focuses to subjective experiences concerning the topics, which have been pre-analyzed (Hirsjärvi et al., 2009; Merton et al., 1956). During the last decades theme interview has been the mainly utilized interview type in business economics, wherefore it is often noted as a synonym for qualitative research (Koskinen et al., 2005). According to Hirsjärvi & Hurme (2010), theme interview focuses on certain themes rather than solitary questions. The similar themes are discussed in all interviews, which confirm the gained information is based on same subjects. Theme interview enables interviewer to discuss the topics more freely, which might ease the interviewee to unfold the standpoints. (Hirsjärvi & Hurme, 2010)

Due to the fact the study concentrated on three different groups of actors, operators, governmental authorities and unions, and the objective was to understand the market situation via their viewpoints, the questionnaires differed a bit from each other. In the operators' questionnaire six sub-themes are introduced. These follow the research's structure, and include topics such as company background, entering the market and market environment, infrastructure, cooperation with labour unions, governmental bodies' actions and the European Union (see appendix 3). The other options follow this structure: The questionnaire meant for governmental authorities cover otherwise the same aggregates, but the market entry is viewed from another perspective. Furthermore, international cooperation is included. The questionnaire for labour unions is the most simple, due to the fact various topics are not adequate for unions. The form includes topics such as basic information, the labour union's services, market environment and deregulation's influence on passenger rail market.

Theme interview was chosen as an interview type for this research due to the fact it provided needed information concerning key problems and deregulation's influence

on the market. Furthermore, it enabled to study the various actors' cooperation, as well as to understand the social consequences. The objective was to compare the results between the countries, and to understand the peculiarities in the national level.

4.3 Collecting the Data

Data for this study was gathered via customer satisfaction survey and expert interviews. The processes are described more carefully in below subchapters 4.3.1 and

4.3.1 Customer satisfaction survey

Customer satisfaction survey was organized in October 2010 in three cities (see table 12). Tallinn and Stockholm were tackled on Wednesday 6th October 2010, and Copenhagen followed on Thursday 7th October 2010. The fact all surveys were done during the similar time (middle of the week, in the beginning of October) strengthen the comparability of the results. All surveys were conducted in the central railway stations, in order to gather as extensive database as possible. In Stockholm and Copenhagen situation became challenging as the interviewers were removed from the stations, due to lack of needed permissions. However, research teams were able to gather a suitable number of responses.

Table 12 Customer satisfaction survey

Date	Location	Number of responses
Wed. 6.10.2010	Tallinn, Estonia	78
Wed. 6.10.2010	Stockholm, Sweden	37
Thu. 7.10.2010	Copenhagen, Denmark	53

In order to facilitate the process and gather as many responses as possible, help from a group of international exchange students from Lappeenranta University of Technology was used (see appendix 11). In every city a representative from Kouvola Unit was present, in order to confirm the survey was done in an intended way. In Tallinn the supervisor was Dr. Juha Saranen, and the group of other participants included trainee Tiina Poikolainen and five exchange students. From Tallinn the group was able to gather 78 responses. During the same day M.Sc. Milla Laisi took her group to Stockholm, where with the help of four exchange students were gathered 37 responses. M.Sc. Milla Laisi continued the process in Copenhagen with students; from Copenhagen were gathered 53 responses. Basically the research group was divided into two: While the other part was approaching the passengers to participate in the survey, few persons were handing out flyers. The main objective was to provide passengers in hurry a possibility to answer to survey via Internet. In addition to questionnaires in English, Swedish and Estonian, the page www.helinasurvey.fi consisted of basic information about the study. Also the data gathered via personal contacts were added to the Internet page, in order to guarantee the data was easily accessible. Because the total amount of responses was 168, a coding system was organized. In addition to numbering the forms and dividing codes per countries, complement codes were given to flyers. This way the responses gained via hand-out

flyers were separated from the other answers. Although altogether over 500 flyers were handed out, only few people responded.

The customer satisfaction survey form was printed out in native language (except in Denmark, where Swedish was used) in order to facilitate the answering process. The form consisted of 13 questions, including both multi-choice and open sections (see appendices 6 and 7). According to Saunders et al. (2000), the structure of the questionnaire, especially carefully designed questions, can increase the number of responses. Therefore, the questionnaire was adapted from previous customer satisfaction surveys. In Tallinn and Copenhagen the biggest group of respondents were students, which might be due to better understanding of languages. Additionally, students seemed to have more time to answer, while other passengers were too busy to fill in the long questionnaire. In Stockholm the main group of respondents were commuters. In all cities all occupational groups were presented, wherefore the answers are encompassing a valid database. Great amount of respondents lived in research cities and therefore they were well aware of its peculiarities. This also strengthens the research's validity. In Stockholm and Copenhagen most of the respondents were using train at least four days a week; based on their experiences the public transport is functioning well and the frequency of trains was acknowledged. In Tallinn respondents were travelling by train more seldom, but they thought the transportation system was functioning well. In Stockholm and Tallinn most of the respondents would have had a possibility to use car for this certain journey, but in Copenhagen the situation was vice versa. Finally, the type of utilized ticket varied between the cities: In Stockholm and Copenhagen the period loaded on a travel card was mainly used ticket type, while in Tallinn the respondents were using single tickets. The survey's results are described more carefully in Chapter 5.

4.3.2 Expert interviews

Persons selected for the interviews were experts in their fields. Most of the interviewees had a long history in transport, often also in railway market. Altogether were interviewed 19 persons representing 17 companies (see table 13). Additionally, one phone interview was conducted, due to unsuitable meeting times.

Table 13 Expert interviews

Date	Country	Company/organisation	Name	Title
4.11.2010	Sweden	Tågåkeriet	Lars Yngström	CEO
9.11.2010	Sweden	SEKO	Bjarne Isacson	Representative
9.11.2010	Sweden	Stokholms Lokaltrafik (SL)	Marten Levin	Project Manager
10.11.2010	Sweden	Stockholmståg	Tomas Löfstedt	Development Manager
11.11.2010	Sweden	ST	Karin Morild	Research Officer
11.11.2010	Sweden	Råslagståg	Lars-Henrik Larsson	Traffic Manager
12.11.2010	Sweden	Trafikverket	Anders Svensson	Strategist
17.11.2010	Estonia	ERAÜ	Oleg Tšubarov	Chairman
18.11.2010	Estonia	EVKL	Tõnu Väät	Chairman
19.11.2010	Estonia	City urban planning department	Kerttu Märtin	Coordinator
18.11.2010	Estonia	Edelaraudtee	Annemari Oherd	Passenger Traffic Manager
20.11.2010	Estonia	Ministry of Economic Affairs and Communications, Road and Railways Department	Indrek Laineveer	Head of Railways Division
6.12.2010	Denmark	Dansk Jernbaneforbund	Claus Frederiksen	Secretariat Manager
6.12.2010	Denmark	Trafikstyrelsen	Nicolai Bundgaard	Contract Manager
		Trafikstyrelsen	Frank Johansen	Head of Section
8.12.2010	Denmark	LO	Ib Maltesen	Economist
8.12.2010	Denmark	Arriva	Thomas Öster	Commercial Director
9.12.2010	Denmark	Banedanmark	Alex Nielsen	Key Account Manager
		Banedanmark	Kim Feldborg	Key Account Manager
10.12.2010	Denmark	Nordjyske Jernbaner	Preben Vestergaard	Director

The Swedish interviews started the process in early November. Altogether six persons representing six organizations were met; additionally, one interview was done via phone. From Estonia were met five persons representing five organizations. Due to language problems, help from an interpreter was used in order to facilitate the meetings. Danish interviews were conducted in early December. Altogether from Denmark were interviewed six companies: In two meetings two persons were present. Because from all research countries were met representatives from all required groups (passenger railway undertakings, governmental authorities and labour unions), validity is confirmed. All interviews were arranged by email and conducted in interviewees' offices except one, which was done in a cafeteria. All meetings were held during normal office hours. All interviews were conducted in English, except for two Estonian interviews.

Interviewees were informed beforehand the interview takes one to two hours. Generally duration varied from 40 minutes to two hours. The longest meeting was kept in Denmark, the length was over three hours. The reason behind this was that the interviewer visited company's maintenance facilities. Before starting the interview, research's background was described and the interviewee's role was clarified. Permissions to record the interviews were asked and all participants allowed recording. After the interviews, minutes of the meeting were written combining all the relevant information. The document was sent to interviewee for checking. This way interviewee had a chance to check the information once more, and for example correct misunderstood thematic entities.

4.4 Methods Used to Analyze the Research Data

The core of research is analysing, interpretation and making conclusions of the gathered data. When analyzing the data, the type of answers transpires to the researcher. When conducting an empirical research three prefaces must be done. First face is verification of research data: Interviewer must check whether some information is missing or is all data correct. Second stage is to augment the data, for example enlarge the answers. Third face is systemizing the gathered information for saving and analyzing. (Hirsjärvi et al., 2009)

While analyzing the gathered data, certain characteristics that have unfolded in several interviews are examined more closely. Often these are based on the main themes, but sometimes unexpected aggregates might appear. Themes which raise from the interviewees' statements are always interpretations made by the researcher. It is unlikely that two interviewees express the answers similarly, but the researcher can code answers to the same categories. (Hirsjärvi & Hurme, 2010)

There are several methods to analyze the gathered data; in research is often referred to two methods of reasoning, deductive and inductive approach. Deductive concerns the topic from general to specified data, as logical thinking is used as generic tool when creating a proper construction. Inductive approach generates new knowledge for present theories. (Brown and Eisenhardt, 1997; Burney, 2008; Hilmola, 2003; Hirsjärvi et al., 2009; Saunders et al., 2000) Although Häkkinen and Hilmola (2005) stated case studies are mostly utilizing inductive approach, Hilmola (2003) has noted often researchers using case study as a research method combine both approaches. This is the case in this research: Due to extensive nature of study, both inductive and deductive methods are utilized. On the other hand study's objective is to generate new findings and confirm existing ones, which fulfils the demand of inductive method. At the same time customer satisfaction survey tries to understand the factors from general to specified level, which adapts deductive reasoning method.

5 Customer Satisfaction Survey

Customer satisfaction survey was done in three North-European capitals in the beginning of October 2010. As research cities were selected Tallinn (Estonia), Stockholm (Sweden) and Copenhagen (Denmark). Overall the survey consisted of 13 questions, including both multi-choice and entirely open sections. Results are presented in this Chapter and discussed more in details in Chapter 8 (Discussion). More information, how the survey was concluded is available in Chapter 4.3.

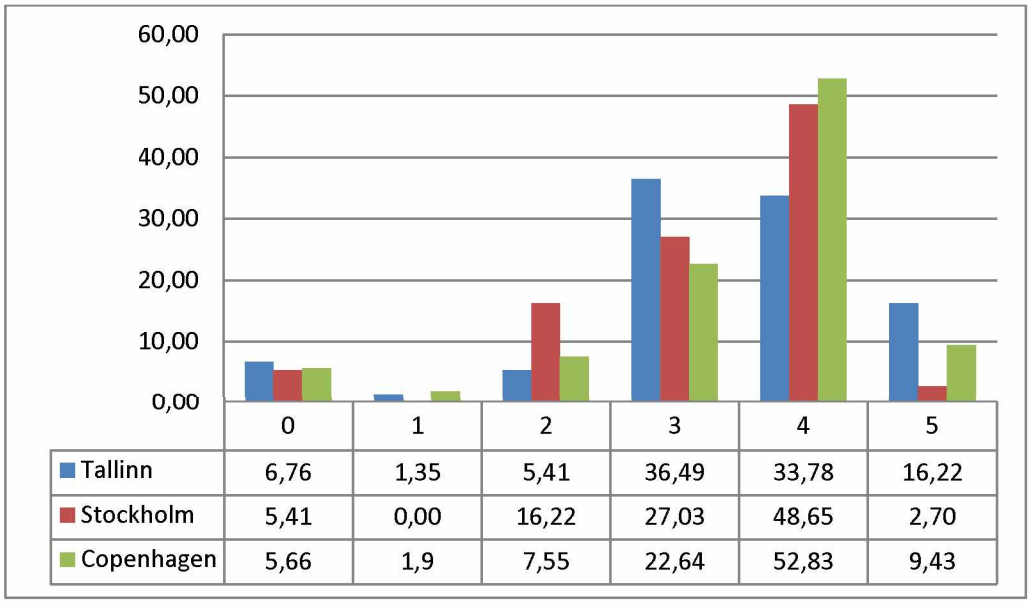
Customer satisfaction survey's main intention was to understand the passengers' standpoints towards two aggregates. Firstly, the overall opinion about the public transport, especially concerning the commuter train traffic was investigated. Survey got acquainted with general satisfaction level as well as more specific factors, such as ticket pricing and trains' punctuality. Secondly, survey evaluated the passengers' level of knowledge concerning deregulation and examined the respondents' thoughts and opinions about the new market model. Furthermore, survey checked how well the passengers were aware of operators providing services in the target countries. As the most important factors affecting on the customer satisfaction level were unfolded ticket prices, trains' punctuality and the fact operated line corresponds to personal transport needs. Although passengers had rather low knowledge level about deregulation, the influences were seen fairly positive. However, passengers were not able to specify operators; only after a list of names was provided, companies were recognized on some level. Generally the differences between countries were rather small-scale; surprisingly in some comparisons Tallinn was ranked number one.

5.1 General Evaluation of the Commuter Train Traffic

Information about timetables was mainly searched from the Internet irrespective of city, where the survey was conducted. 77.4 percent of the respondents in Tallinn and 77.8 percent in Stockholm used Internet as the main source of information. The same figure for Copenhagen was 72.4 percent, respectively. Traditional sources such as timetable books and displays were only used by few respondents. However, also the reverse side was noted: The elderly respondents without access to Internet found this current practice as discriminating.

Locomotive drivers' way of driving was noted being smooth, comfortable and overall positive in all three cities. In Tallinn 68.9 percent and in Stockholm 62.1 percent of the respondents gave grade quite good or very good. Similarly, in Copenhagen over half (58.6 percent) of the respondents gave a good grade. There were only few unsatisfied respondents in every city, giving very poor or quite poor grade. Train services' punctuality divided opinions between the cities. Although in Tallinn all five alternatives were supported, mainly positive results were stated: 40 percent thought punctuality was quite good and 24 percent stated it to be very good. Stockholm and Copenhagen differed from Tallinn as in Stockholm 40 percent and in Copenhagen 35.8 percent of respondents stated punctuality is neither good nor poor. From the Swedish respondents 32.4 percent were rather unsatisfied by ranking punctuality as low as quite or very poor, whereas 20.8 percent of the Danish and only 10.7 percent of

the Estonian responses were on the negative side. 36.9 percent of Danish respondents stated the punctuality is taken care of rather well. The respondents' thoughts about trains' tidiness and comfortableness of the fittings inside the trains followed the same trend in all cities. Over one fourth of the respondents in all three cities stated neither good nor poor to this question. Estonians took the tidiness most positively, as 51.3 percent gave quite good or very good grade. The overall appearance of trains' fittings was noted quite good or really good in all cities: Copenhagen ranked first with 66 percent, Stockholm second by 64.8 percent and Tallinn third by 34.3 percent.



	0	1	2	3	4	5
Tallinn	6,76	1,35	5,41	36,49	33,78	16,22
Stockholm	5,41	0,00	16,22	27,03	48,65	2,70
Copenhagen	5,66	1,9	7,55	22,64	52,83	9,43

Figure 13 *General Evaluation of the commuter train in Stockholm / Copenhagen / Tallinn, percents*

Figure 13 shows clearly that in all three cities respondents were quite satisfied with the commuter train traffic. In Tallinn the mainly utilized transport mode is car, which reflects to this question. 36.5 percent of the respondents ranked the service neither good nor poor, as commuter trains are not used as commonly in Tallinn than in the other two cities. Commuter trains were given a grade quite or very good by 50 percent of Estonian respondents, while in Stockholm altogether 51.4 percent of respondents thought commuter rail transport is organized quite or very well. The emphasis was on "quite good", almost half of the respondents (48.7 percent) gave this grade. In Copenhagen 62.3 percent of respondents considered commuter train system to function well. Poor marks were given in under ten percent of cases in Tallinn and Copenhagen, but 16.2 percent in Stockholm. Therefore, it can be stated, that surprisingly many Swedish respondents were unsatisfied with the commuter train services. Generically respondents were most satisfied with the commuter rail transport in Copenhagen.

5.2 Factors Affecting on Customer Satisfaction and the Actual Implementation

The availability of seats was noted dependent on the time of the day as peak hours are often more crowded. It can be stated that only fewer than ten respondents from each city noted the availability of seats as unsatisfactory. Most satisfied with the availability of empty places were the Estonian respondents with 62.1 percent, but the differences to the other two cities were only minor. Timetable encounters the passengers' travel needs rather well. Most substantial influence on customer satisfaction was noted in Tallinn and Stockholm, where over 60 percent of respondents stated the factor influences on their satisfaction level quite or very much. Same trend was recognized in Copenhagen, where the percentual coverage was just under 60 percent. Trains' punctuality divided the opinions. According to the results, punctuality was among the factors having the greatest influence on overall satisfaction level: 71.3 percent of respondents in Tallinn noted it has big impact on satisfaction. The figures for Stockholm and Copenhagen were 32.4 percent and 51 percent, respectively. In Stockholm quite high volume of respondents (48.6 percent) stated punctuality affects neither much nor only little to satisfaction, stating the situation is seen rather OK.

In order to compete with other transport modes, travelling by train should be quick and fluent. This factor's importance and influence on customer satisfaction cannot be questioned. All three cities did rather well: Quite well unfolded as the main rank in all cities. Factor seemed to have especially big influence in Stockholm, where 70.3 percent of respondents ranked it as an important function. Frequency of trains was unfolded as one of the main reasons why daily travelling is often done by train. In Stockholm and Copenhagen respondents thought this factor has slightly more influence as over 60 percent gave grade quite good or very good. In Tallinn 24.4 percent stated the factor does not have a great effect on contentment. The transfer between means of public transportation affects the satisfaction in all three cities. Only less than ten percent of respondents thought it has minor influence on satisfaction, whereas it was stated as an important factor by more than 50 percent of respondents. Interestingly, over 40 percent of respondents in every city stated the fact that shopping possibilities, work place or school are located nearby the routes has considerable influence on contentment. Quantity and diversity of destinations was stated having neither large nor small influence by 40.4 percent of the respondents in Copenhagen. Correspondingly, 48 percent ranked the factor having quite or very big influence. In Stockholm 54 percent gave also positive statements. From Tallinn respondents 57.1 percent stated this factor has big influence on customer satisfaction. Passenger safety and lack of disturbances were also stated to affect on passenger satisfaction: 64.8 percent of Estonian, 54 percent of the Swedish and 42.3 Danish respondents noted it has fairly big effect, stating the factor's influence cannot be denied. The waiting conditions at the stations seemed to have a considerable influence on customer satisfaction. This was recognized by 15.5 percent of respondents in Tallinn, 2.7 percent in Stockholm and 9.6 percent in Copenhagen. More descriptive might be that this factor was stated to have some influence by almost 30 percent of respondents in Tallinn, 40.5 percent in Stockholm and 21.2 in Copenhagen. Quite small effect on satisfaction was stated in Copenhagen (23.1 percent).

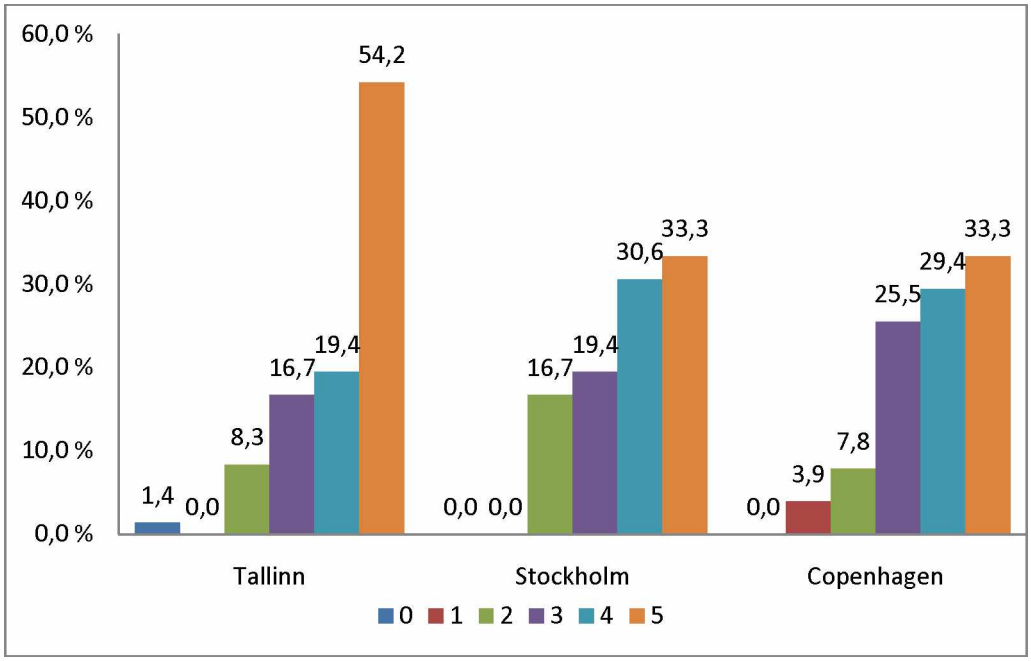


Figure 14 *To what extend "ticket purchasing is easy" influences on your satisfaction level*

Figure 14 illustrates the influence of easy ticket purchasing to customer satisfaction. In all three cities the respondents thought this factor as an important one and it has a great effect on customer satisfaction. Over 50 percent of respondents in Tallinn found easy ticket purchasing having very big influence to customer satisfaction. The same trend was seen in all cities, as over 60 percent of respondents found it to have quite or very big influence on contentment.

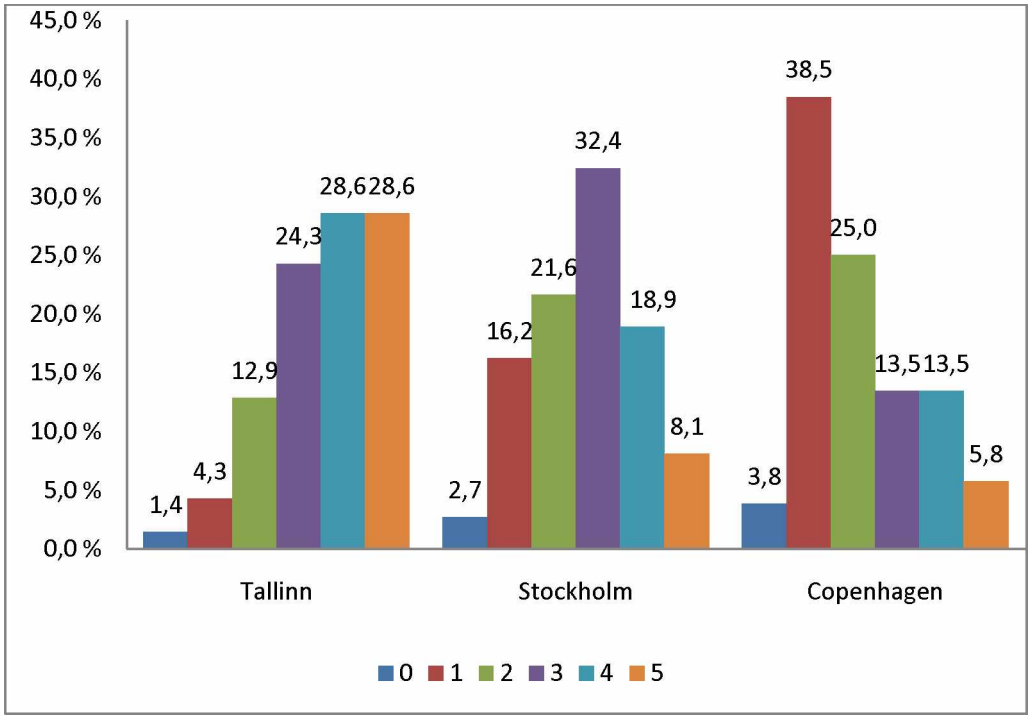


Figure 15 *To what extend "ticket price" influences on your satisfaction level*

Respondents' thoughts concerning ticket price and thereof influence on customer satisfaction varied between the cities as presented in figure 15. In Tallinn respondents regarded the ticket price as highly impacting on satisfaction (57.2 percent), whereas situation in Copenhagen was nearly opposite, ticket price high impact being 19.3 percent. In Stockholm 27 percent of respondents noted the ticket price has some influence on satisfaction. Information at the stations and in the trains is well organized; the Estonian respondents considered the factor to have more influence on customer satisfaction than the other counterparts. When ranking the rolling stock's newness to satisfaction level, Swedish respondents stated it had rather large influence with 40.5 percent. The situation was divergent in Tallinn and Copenhagen, where around 35 percent of respondents stated rolling stock's age have quite little effect. Although nowadays it is rather often noted that passengers are requesting additional services in trains, such as Internet and radio, in this research the statements are divided quite evenly with all alternatives. When comparing the cities with this factor, it was mostly influencing on customer satisfaction level in Estonia.

Respondents had opportunity to name the three most important factors of seventeen listed in previous paragraphs that influence the most on customer satisfaction. As the most influencing factors unfolded ticket price (Tallinn) and trains' punctuality (Stockholm and Copenhagen). As second ranked punctuality (Tallinn), the timetable meets my travel needs (Stockholm) and seats are available at this route (Copenhagen). As thirdly influencing factors were stated the timetable meets my travel needs (Tallinn) and ticket price (Stockholm and Copenhagen).

The main idea of the fourth question was to find out, how the same seventeen different features presented in previous question are practically realized. Respondents were rather satisfied with the amount of available seats: In Tallinn over 40 percent stated places are well available. Same figures for Stockholm and Copenhagen were over 60 percent. Passengers were mostly unsatisfied in Tallinn, where 18.1 percent stated seats are poorly available. The timetables encountering with the travel needs were best realized in Tallinn and Stockholm, where around 60 percent of respondents were quite or very satisfied. The same trend continued in Copenhagen, where the percentage was around 55. As stated previously, this factor has an influence on customer satisfaction and it is also practically quite well realized in all the cities. Respondents stated the punctuality of trains is in rather good level. In Copenhagen 67.2 percent, Tallinn 41.6 percent and in Stockholm 30.3 percent stated the punctuality is taken care of quite or very well. In Tallinn and Stockholm rather many respondents (about 50 percent) stated punctuality is actually realized neither well nor poorly. Travelling was noted as quick and fluent in all three cities. In Stockholm passengers were most satisfied with the actual situation: According to 69.7 percent of respondents, travelling was quite or very quick and fluent. Overall more than 50 percent of respondents gave positive statement; the only city which was noted to have problems was Tallinn, where three percent thought travelling was really slow and troublesome.

Frequency of trains is practically realized best in Stockholm and Copenhagen, where over 50 percent of respondents thought it deserved one of the two highest ranks (quite or very well). The factor was noted to be practically neither well nor poorly realized in around 30 percent of all cities' responses. The transfer between means of public transportation was the most fluently implemented in Stockholm, where 66.7 percent of respondents ranked the factor high. Percentages for unsatisfied answers

remained under 10 in Tallinn and Copenhagen; in Stockholm the same figure was 12.1 percent. In Copenhagen 55.9 percent of respondents thought the shopping possibilities are located nearby the routes quite or very well. The importance of nearby location of school or work place was best carried out in Tallinn, where 60.6 percent of respondents stated factor is quite or very well realized. Quantity and diversity of destinations were practically realized best in Stockholm, where almost 60 percent of respondents gave the rank quite or very well. In Tallinn and Copenhagen the same figures were a bit less than 40 percent. Furthermore, in these two cities the percentage for statements neither well nor poorly was over 40 percent. Based on respondents' remarks, passenger safety is quite well organised in all the cities: 56.1 percent of Estonian, 36.4 percent of the Swedish and 37.2 of Danish respondents stated it is well taken care of. The percentages of lower grades were around ten in all three countries. Waiting conditions at the stations were noted to be arranged rather well: Over 30 percent in Tallinn, 40 percent in Stockholm and 20 percent in Copenhagen noted conditions as quite good. However, the most unsatisfied with the situation were the Danish passengers, as 39.5 percent of respondents noted conditions are rather poor.

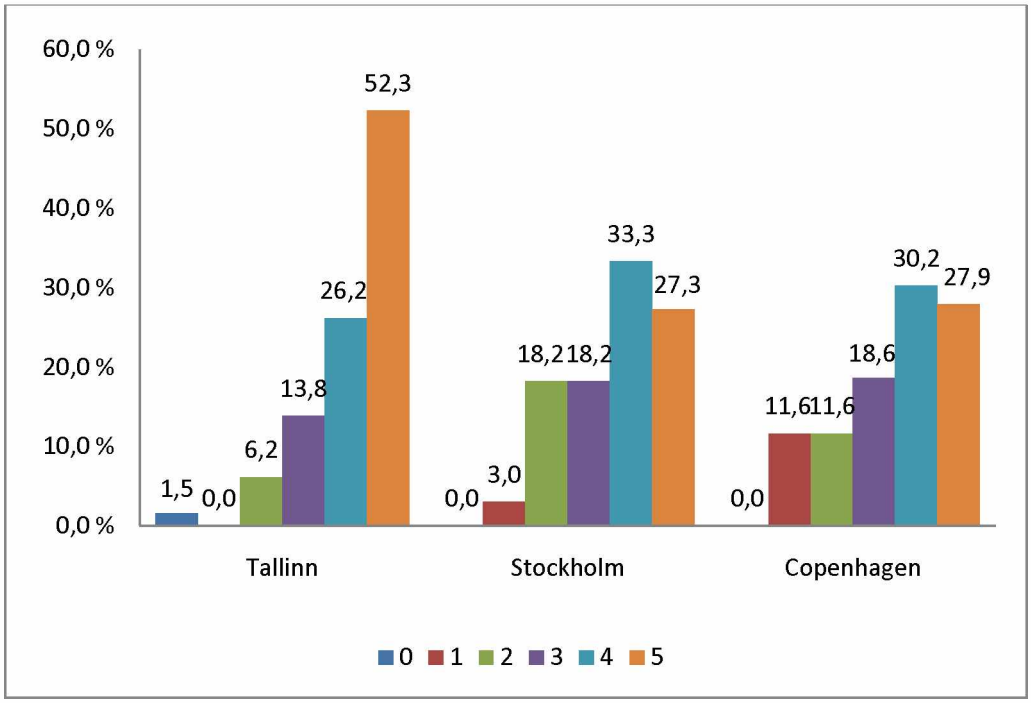


Figure 16 *To what extend "ticket purchasing is easy" is actually realized*

As described in figure 16, ticket purchasing is found to be on a low level only by few respondents in every city. In Tallinn over half of the respondents thought ticket purchasing is organized very well in practice. In Stockholm and Copenhagen ticket purchasing was also found easy. Ticket purchasing is a necessary action before or during the voyage and it should be easily and fluently organized, since it has a great influence on customer satisfaction.

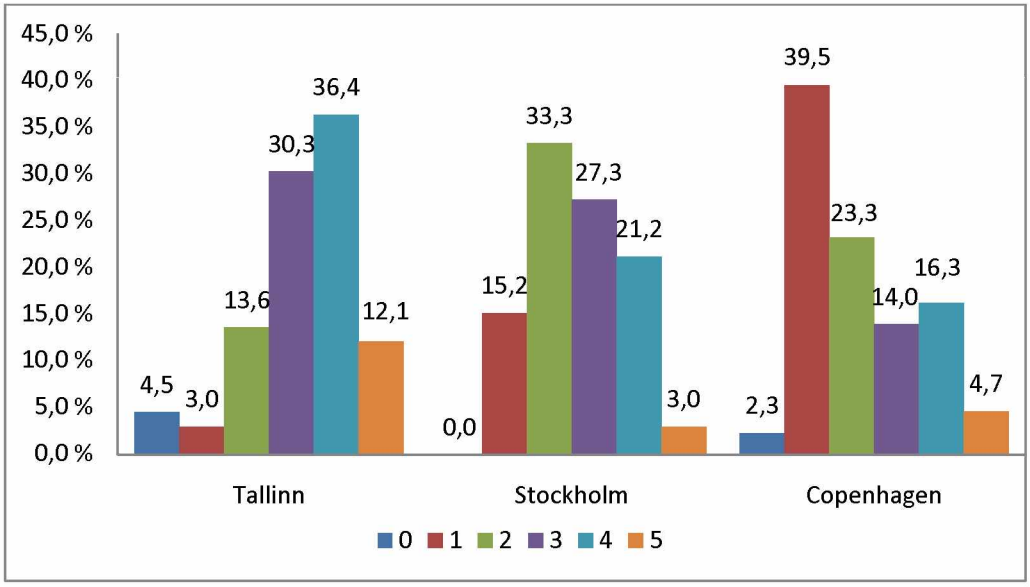


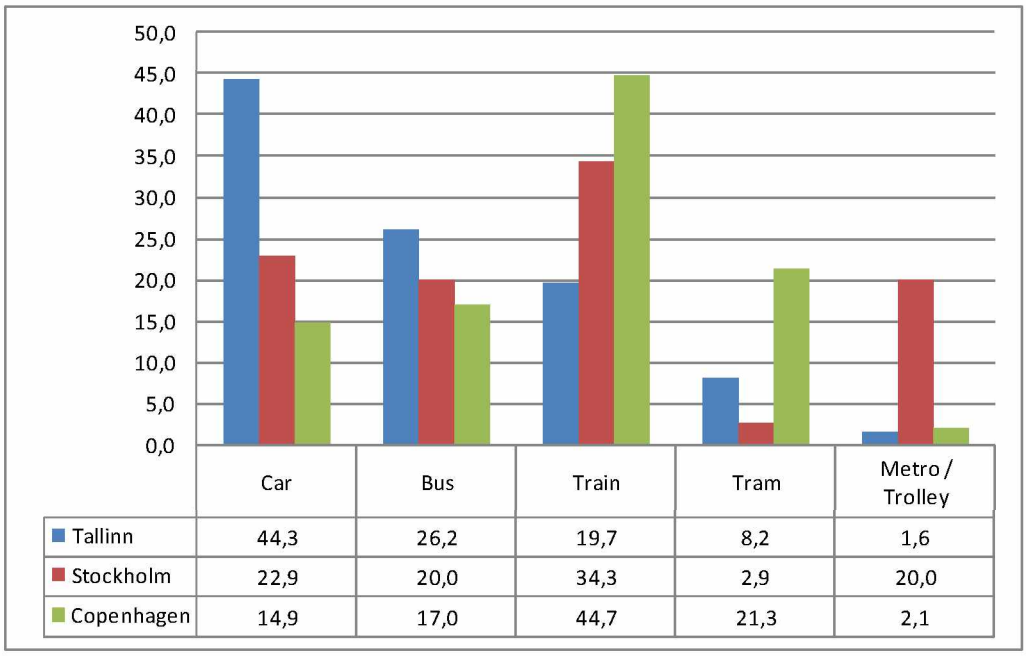
Figure 17 *To what extend "ticket price" is actually realized*

As illustrated in figure 17, there are differences between the ticket price realizations in the three countries. In Tallinn respondents were the most satisfied with the ticket prices, whereas in Copenhagen respondents thought the prices are not on a good level. In Stockholm respondents were not so clearly satisfied or unsatisfied as answers were divided evenly between the alternatives. When comparing how well the factor is actually realized and how much it affects on customer satisfaction, it can be stated the influence of ticket price varies greatly between the cities. Major discrepancies are noted in Copenhagen: Respondents stated the ticket prices do not have a great influence on contentment, but in reality the ticket prices are considered to be too high and therefore almost 40 percent of respondents were unsatisfied with the situation. Interestingly, in the previous question were respondents were evaluating how much the various topics influence on their satisfaction level, ticket price was not noted influential factor.

When considering the information's availability at the stations, neither well nor poorly was stated most in Copenhagen (46.5 percent) and in Tallinn (34.4 percent). The best result was noted from Stockholm, where 54.5 percent of respondents stated information at stations is quite or very well organized. Information in trains follows the same trend and was organized best way in Stockholm, secondly in Tallinn and thirdly in Copenhagen. Rolling stock's newness was noted to be best in Stockholm, where 42.4 percent of respondents stated rolling stock is quite or very new. The same figures for Tallinn and Copenhagen were 24.7 percent and 14.0 percent, respectively. However, factor was ranked neither well nor poorly organized rather often (Tallinn 23.1 percent, Stockholm 33.3 percent and Copenhagen 48.8 percent). The rolling stock was stated to be oldest in Tallinn, where wagons and locomotives were ranked very or quite poor by 32.3 percent of respondents. Despite the old rolling stock, additional services were noted to be available rather similarly in all three cities. Although the statements were divided quite evenly with all alternatives, additional services in Danish trains were ranked the best by 50 percent.

5.3 Preferred Transport Mode

As illustrated in figure 18, there are discrepancies between the transport modes respondents prefer to use in the three cities. In Tallinn most of the respondents (46.3 percent) prefer to use cars as those are comfortable and not tied to schedules. Secondly most used transport mode is bus, as it is considered being relatively fast and cheap way to travel. As a third mostly utilized transport option is stated train, because it is suitable to travel to work. However, more lines and higher speed would make it more appealing for the respondents.



	Car	Bus	Train	Tram	Metro / Trolley
Tallinn	44,3	26,2	19,7	8,2	1,6
Stockholm	22,9	20,0	34,3	2,9	20,0
Copenhagen	14,9	17,0	44,7	21,3	2,1

Figure 18 Preferred transport mode, percents

Metro and trolley are in the same column, as there is no metro in Tallinn, or trolley in Copenhagen or Stockholm. As described in figure 18, in Stockholm (34.3 percent) and Copenhagen (44.7 percent) the respondents prefer to use train. Train is used mainly to travel to work as it is the only possible transport mode for some respondents. Trains are mainly in time and the travelling speed is good. Furthermore, the possibility to work during the train trip was also noted as an important factor, as well as the fact it feels environmentally friendly alternative. Secondly, the Swedish respondents preferred to use cars and thirdly busses. In Copenhagen respondents supported secondly the tram and thirdly the bus or metro (both 20 percent). Metro is considered to be an easy way to travel as there are departures every five minutes; on the other hand, it is stated to be crowded during the peak hours.

5.4 Deregulation

Although deregulation trend has proceeded in North-European countries, it is often noted the passengers are not aware whether several operators are offering the transport services. This was also discerned in all three research cities, where passengers had not noticed whether several passenger rail undertakings were operating the lines (see figure 19).

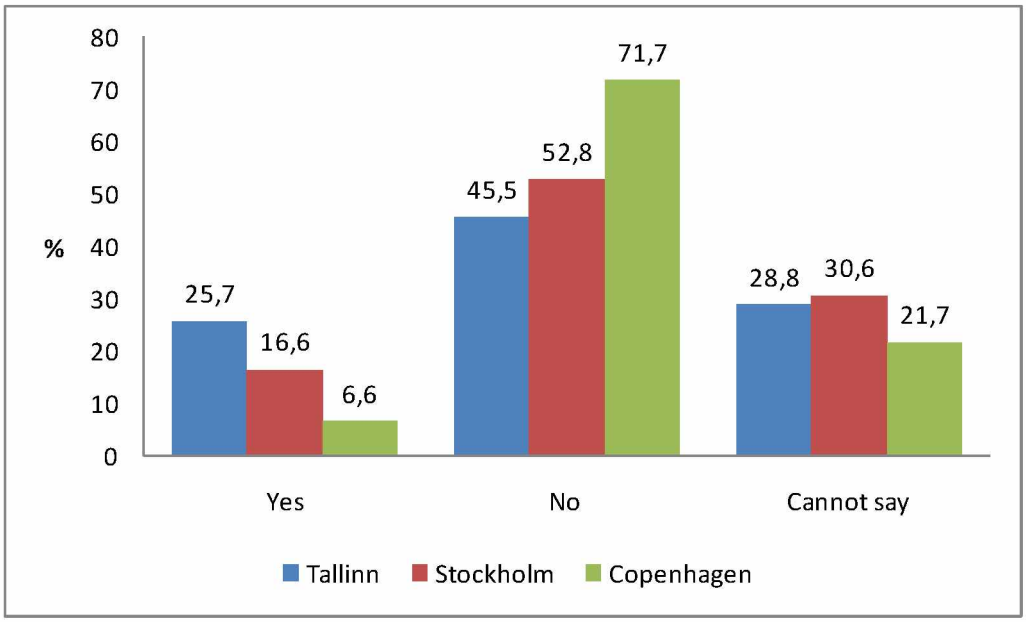


Figure 19 *Have you recognized are there several operators providing passenger rail transport services?*

As illustrated in figure 19, there are discrepancies between the cities. In Estonia passenger rail market was liberalized in the beginning of 2000s. The change has been noticed by passengers, as 25.7 percent of them were conscious about the fact that there are various railway undertakings providing services. Stockholm was lagging a bit behind, whereas in Copenhagen passengers stated there are not several operators (71.7 percent of respondents marked no). "Cannot say" was signified rather often in all cities, which states liberalization has not been noticed by the normal citizens, partly due to its ubiquitous nature. This was also unfolded, when respondents were asked to name the operators. In Tallinn only one respondent of total 66 persons was able to specify all three operators, 17 persons were able to recall one or two passenger rail companies. From Stockholm only three respondents were able to state one to three operators, and in Copenhagen one person named four and one person one operator. Therefore, the trend noticed in figure 19 is well visible when comparing the percentual measures: In Tallinn, 27.3 percent of respondents were able to specify passenger rail operators, whereas the figures in Stockholm and Copenhagen were 8.3 percent and 4.3 percent, respectively. Passengers who recognized various companies were operating in the market did not notice great differences between the operators. In Tallinn four people thought there are differences, while in Copenhagen one person noted the same factor, whereas in Stockholm all operators were noticed to operate alike. Respondents were also rather satisfied with the services, which operators were

providing, for example ticket purchasing and personal service received rather high ranks among all operators.

Although respondents were not aware whether any new operators have entered the markets, when requesting how the market situation would change, if new operators would enter the market got fairly positive comments. In Tallinn, 47 percent of respondents thought new market entries would provide positive insights into the market. As the main influence were stated changes on prices: Ticket prices were conjectured to decline and become more competitive. In addition to increased competition, Estonian respondents thought deregulation would improve the service and provide more versatile lines. Congruent 47 percent did not know, how the new entries would change the market, whereas six percent saw new entrants would have negative influence. As the main reason behind this standpoint was noted the fact the respondents thought there are not enough passengers for various operators; furthermore, they thought the new operator would most likely be foreign company, which would damage the economical situation of Estonia. Swedish respondents had the most negative posture: 11.4 percent of respondents thought new entries would bring along various negative effects, such as utilizing only the service provided by the cheapest operator, similar pricing policies and schedules, and patchy quality. Rather many interviewees also noted one company might control the traffic by taking care of the transportation peaks, which would damage the other service providers. 65.7 percent of Stockholm respondents did not know what would happen. New market entries were considered as positive by 22.9 percent of respondents: Based on their viewpoints, prices would decline and amount of lines and shifts would increase. Danish respondents were unsure what would happen, which was stated with 60.9 percent of "Cannot say" responses. However, citizens of Copenhagen have rather positive viewpoint: 34.8 percent of respondents discovered new entries would have a positive effect on the market. As the main reasons were stated decline of prices and better schedules and accuracy. Additionally, improvement of customer service was stated by several respondents. 4.3 percent specified the deregulation would have negative effect, mainly due to the fact the market would be uncoordinated.

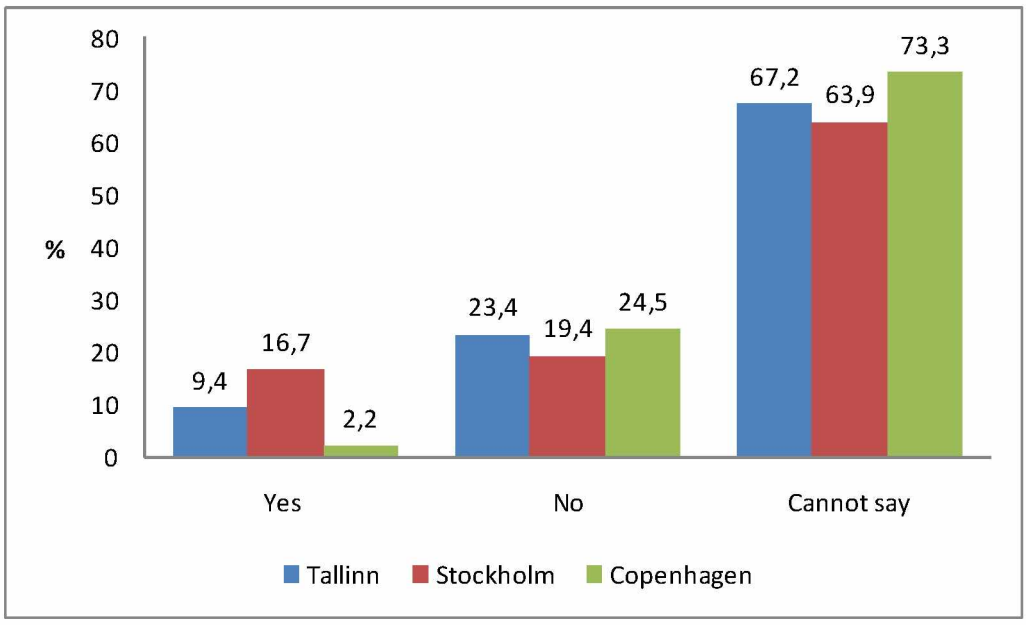


Figure 20 Has the passenger rail deregulation changed the market?

As figure 20 illustrates, when requesting whether deregulation has changed the market responses follow the same trend. Danish respondents have noticed least changes: 73.3 percent of Danish respondents were not able to comment, whereas 24.5 percent stated market's nature has not changed. Only 2.2 percent discovered some changes. In Tallinn 23.4 percent of respondents thought the market has not changed; 67.2 percent could not comment the matter. 9.4 percent of Tallinn respondents thought market environment has confronted some changes: Ticket prices were noted to be stable, and trains had become more comfortable. The most changes were discovered in Stockholm, where 16.7 percent had noticed some modulations. According to respondents, the changes are noted not only in increased number of operators, but also accidents and delays have become more common. Noise level has increased, and few respondents found out that the network capacity has been maximized without given attention on the consequences. Some respondents also thought deregulation has made the situation worse, due to increased cost savings. 63.9 percent of respondents did not know how to comment, and 19.4 percent thought no changes were visible. Although respondents could not comment whether various companies were operating in the market, once they received a list of operating companies, operators were rather well known. Therefore, it can be concluded although people are not able to specify the operators, when companies are listed those are recognized (see figures 21, 22 and 23).

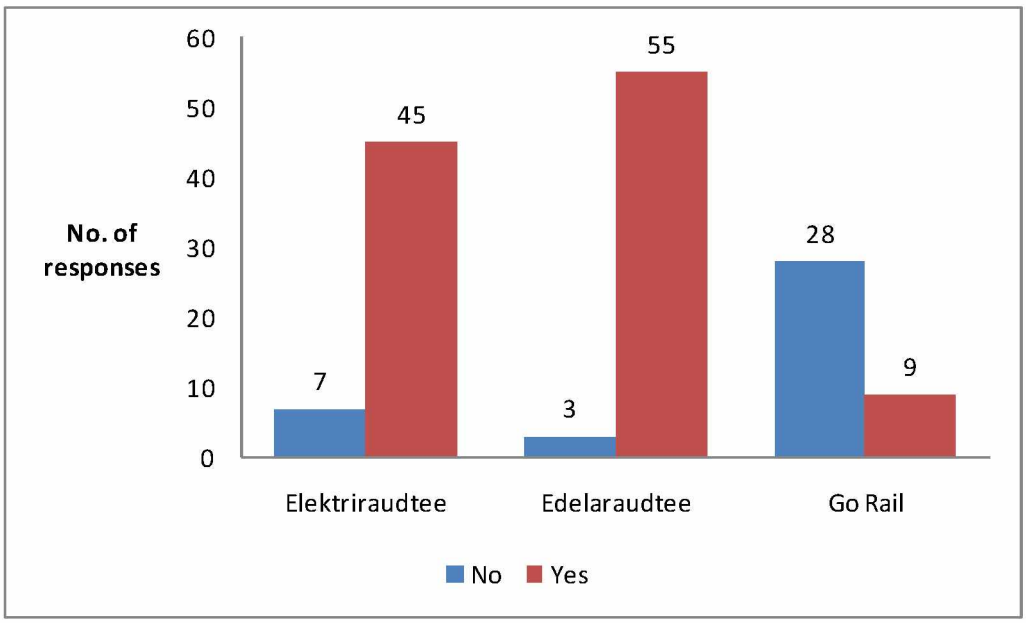


Figure 21 *Have you used services offered by the following Estonian operators?*

Figure 21 describes the situation in Tallinn. Estonian passenger rail market has three operators, which are responsible of transport services in different market areas. Elektriraudtee is responsible of Tallinn commuter traffic, and therefore 86.5 percent of respondents have used its services. Edelaraudtee, which is the national operator offering long-distance services, is even better known: 94.8 percent of interviewees recognized the operator. The least known operator is Go Rail: 75.7 percent of respondents did not know the company. The fact that it operates only night trains between Tallinn and Moscow explains low awareness. Furthermore, the fact that quite

many respondents left the question open might be interpreted as not knowing the company.

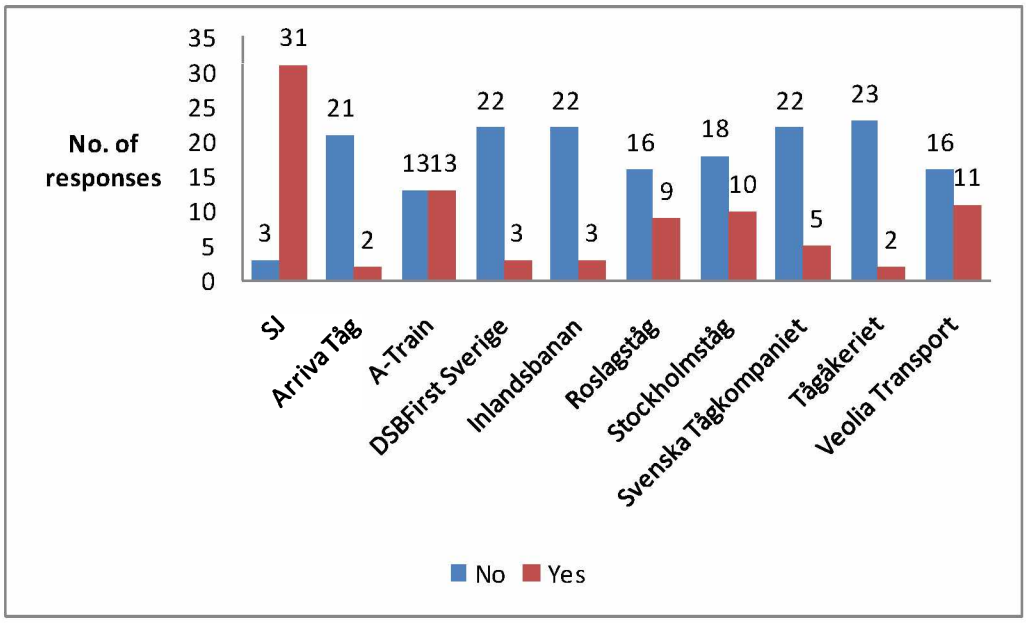


Figure 22 Have you used services offered by the following Swedish operators?

Figure 22 illustrates how well Swedish respondents knew various operators. Altogether to the survey were chosen ten operators: Three are operating in Stockholm commuter traffic, one is the national operator and six are small operators offering transport services in certain areas. This can be seen from the results: The national operator, SJ, is really well known, 91.2 percent of respondents had used SJ's services. Respondents knew rather well operators offering services in Stockholm commuter traffic (A-Train, Roslagståg and Stockholmståg). Additionally, Veolia which is one of the large private operators was rather well recognized with 40.7 percent. Veolia service network covers for example the line from Stockholm to Malmö, which might explain the great amount of awareness. Other small scale operators' services were only used by few respondents.

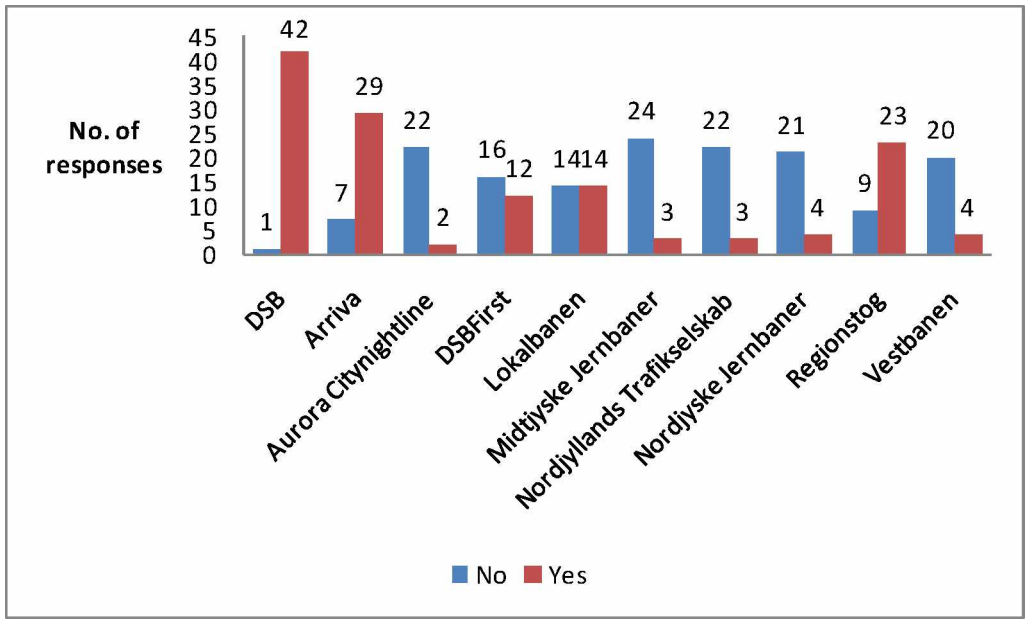
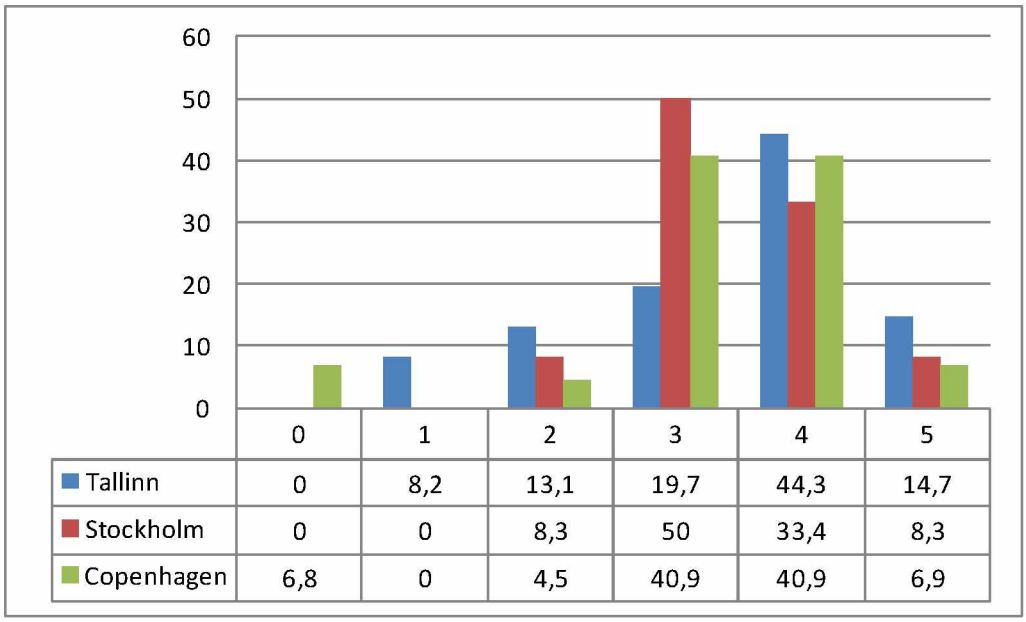


Figure 23 *Have you used services offered by the following Danish operators?*

The situation in Denmark is described in Figure 23. Altogether ten operators were listed: In addition to national operator, nine private companies offering local services around Denmark were included. Copenhagen commuter traffic is totally owned and controlled by DSB (DSB S-tog), wherefore it is the only operator offering commuter transport services. The situation in Denmark follows the trend noticed in Sweden (figure 22): The national operator, in this case DSB, is well known, but overall the private operators have fairly small awareness rate. The mostly used and therefore best known lines are located in Jutland and nearby Copenhagen. Arriva, Regionstog and Lokalbanen are rather well known, other private operators were only used by few respondents.

5.5 Information Services and General Evaluation of the Public Transportation

Overall the respondents were rather satisfied with the information services. Tallinn was ranked as the best city, when comparing the satisfaction of respondents: 63.5 percent gave the information services quite good rank. Same figures for Stockholm and Copenhagen were 44.4 percent and 56.8 percent, respectively. Stockholm was evaluated as providing least information concerning timetables and lines: 16.7 percent of respondents thought information was available quite poorly. When evaluating the ticket inspectors' behaviour, Tallinn received the best marks: 74.6 percent of respondents stated it is quite or really good. Stockholm was ranking second with 57.2 percent. Copenhagen was lagging behind with 46.6 percent.



	0	1	2	3	4	5
Tallinn	0	8,2	13,1	19,7	44,3	14,7
Stockholm	0	0	8,3	50	33,4	8,3
Copenhagen	6,8	0	4,5	40,9	40,9	6,9

Figure 24 General evaluation for regional public transportation

Figure 24 illustrates the respondents' general satisfaction level to regional public transportation. Based on the figures, Tallinn respondents are rather satisfied with the transportation: 59 percent of them gave a good mark, whereas the same figures are for Stockholm 41.7 percent and Copenhagen 47.8 percent. Quite many persons in Stockholm and Copenhagen gave to transport services number 3 (neither good nor poor): In Stockholm this is stated as the largest group (50 percent), whereas in Copenhagen it is sharing the largest groups' title together with "quite good". Interestingly, 8.2 percent of Tallinn respondents gave rank one, which means transportation services are really poor. Furthermore, it is notable 6.8 percent of respondents in Copenhagen noted they cannot say. This is mainly due to great amount of people, who only uses certain transport mode and therefore cannot comment all modes of transportation.

Table 14 Positive and negative customer feedback from Tallinn

Positive	Negative
Trains are on time and and the ticket inspectors are happy	Good connection on weekend between Tallinn-Tartu, but more shifts needed for other days
Good access to the Internet	Seats are uncomfortable
Lower price compared to bus	Speed should be faster
Good and accurate timetables	More affordable tickets
Travelling is a convenient, fast and accurate	Tickets should be cheaper, trains should be more comfortable
Friendly service	First class wagons should be used in all lines
I want to thank the staff	Train and platform gap is very large -dangerous to step over
Very good conditions for ticket purchasing, very convenient	Trains are driving too seldom, the seat s are uncomfortable
Thank you for good work	More shipfts between Tallinn and Aegviidu
Pleasant attitude	Trains are old and prices are high and it seems impossible to change the situation to positive direction (new trains and lower prices)
Wagons are cleaner than before	Personnel could be more positive
Relatively good speed	More security people needed
I think my favorite railway operator is Edelaraudtee	Access to trains is difficult for disabled people
Ticketing, very good! Service super!	More lines, tighter schedule
The work is satisfactory. No complaints.	Price decline should continue
	Old locomotives should be removed, better weather resistance
	More vacancies
	More lines between various cities
	Should be able to pay by bank card
	Good poems in the windows -thank you

Table 14 gathers the given positive and negative feedback from Tallinn. Although table includes more negative comments, various factors are considered to be positive. Customer service is regarded good and trains are noted to work rather well in schedule. However, various matters are dividing the viewpoints. Although Internet connection in trains is ranked to be good, rolling stock is said to be old. Several factors concerning the rolling stock were stated, for example entering to trains is considered troublesome to disabled people, weather resistance should be better and seats are noted uncomfortable. Additionally, more shifts between cities are requested. Although ticket prices are said to be low when compared with bus tickets, according to some passengers the prices should be even lower. Same situation is also noted in Stockholm (see table 15).

Table 15 Positive and negative customer feedback from Stockholm

Positive	Negative
Trains go often	No private companies, thanks!
Tram and bus is very nice, because it is above the ground. Nice for sightseeing!	Connection to Gnesta could happen more often.
Absolutely OK!	More frequent service on late nights; longer trains on Sunday
The staff in the trains is usually positive, despite the frustration with overcrowded trains and vehicle defects.	Additional payment Arlanda Express charges if the ticket is bought on board is negative.
Hold the schedules, reduce the prices!	Hopefully it works better in the winter!
Concerning SL it is good they have so many stations: it's easy to go there and you can save a lot of time.	A long-term deferred maintenance produces unexpected vehicle failures involving cancellations and long delays.
	Rates are way too expensive = Lower prices would mean that more people would use public transport, and more people would choose the local traffic and it would become profitable. This would also save the environment. In addition, although buses and trains go often, my bus to Bagarmossen runs every half hour (161). It's not fun to sit outside in the cold for 30 min. Be better prepared towards the winter. It does not mean that the line becomes stationary, just because it's snowing!

Issues related to ticket prices were unfolded also in Stockholm (see table 15). Rates were considered too expensive, and all additional charges, for example when buying the ticket from train, are seen negative. Connections to certain destinations and frequency of trains during night hours and weekends are wished to be extended. Additionally, problems occurred due to snow and ice are trusted to be better taken care of during coming winters. Although schedules were also noted to be lagging connections, train frequency and diversity of stations were considered as positive factors.

Table 16 Positive and negative customer feedback from Copenhagen

Positive	Negative
Service is good and it functions well.	More friendly personnel!
Trains should be more punctual; especially trains to and from Malmö are awfully often unpunctual.	The operators should not sell more tickets than there are available seats.
Personnel is friendly and often there is a surplus of empty places.	Even more trains needed, should be cheaper and cleaner!
Åresundstågen is top! Practical.	Toilets are often dirty
It would be nicer to travel without the shift in Ålborg	Certain times of a day (typically in the mornings and late afternoons) there are too few free places, if any.
S-tog the line E, which I use most often, functions really well. Trains are new and comfortable, transport time is short and punctuality is good.	

Table 16 introduces the situation in Copenhagen. Same issues were unfolded as in Tallinn and Stockholm: Trains' punctuality and ticket prices were considered as the main drawbacks. As divergence to other research cities the seats' availability was unfolded as an issue in Copenhagen, as certain times of days were noted too crowded. Additionally, according to passengers, operators should pay more attention to tidiness of trains. Increase of punctuality was also requested, especially in line operating between Copenhagen and Malmö. However, the situation might change in near future, due to the opening of new Malmö City Tunnel. The City Tunnel consists of 17 kilometres of tunnel and over ground railway, which connects Malmö Central Station with Öresund Bridge, which leads to Copenhagen. This enables to increase the frequency of trains travelling between Copenhagen and Malmö from current three to six per hour.

5.6 Summary

The customer satisfaction survey has unfolded interesting insights about the passengers' opinions towards the passenger rail market. In all three target cities, Stockholm, Tallinn and Copenhagen, respondents were more satisfied with commuter train system than the whole public transport network. Similarly, the most important factors influencing on the journey were the same: Ticket price, punctuality and how well the line correspond with the travel needs were listed as mainly demanded functions. When asking, how well the functions are actually realized, concordant line continued, as respondents from all three cities noted the lines are corresponding well with the travel needs. The first factor dividing the opinions was punctuality; Tallinn respondents were rather satisfied with the situation, while Danes and Swedes thought there are needs for improvement. As the most interesting and dissimilar opinions were gained concerning ticket pricing. When respondents were asked to comment how important ticket pricing is as a function to overall satisfaction level, Tallinn respondents considered it is quite or very important, Swedish thought it was somewhat consequential while Danish respondents stated it is not important at all. However, once they were commenting how well the factors have been actually realized, the results were vice versa. Estonians thought ticket prices are in rather good or very good level, while Swedes were a bit more unsatisfied. The most discontented with ticket prices were Danish respondents, who thought ticket pricing is realized really poorly –although they earlier informed the ticket price level does not influence on satisfaction level!

As expected, the preferred mode of transport divided viewpoints. Car was noted as the main mode of transport in Tallinn, where 44.3 percent of respondents stated they prefer to use car. Bus was ranked second preferred option (26.3 percent) and train third with 19.7 percent. The situation was vice versa in Copenhagen, where 44.7 percent of respondents informed to prefer train. Tram unfolded second (21.3 percent), bus third (17 percent) and car only fourth with 14.9 percent. Stockholm was a mixture of these two, as the most preferred mode of transport was noted train (34.3 percent), second car 22.9 percent and third bus and metro with 20 percents' preference. Results are correlating with theory: According to Statistics Denmark (2010), in Copenhagen only 32 percent of families have a car, while the figure in whole Denmark is 59.6 percent.

When requesting about the deregulation, the basic outcome was the respondents were not aware whether several companies are offering services. Especially hard task was to name to operators, as only few persons per city were able to specify even few companies. However, once the list of operators was given to them, majority of the respondents knew the biggest operators. Especially hard for respondents was to name the companies operating in countryside; this might be explained by the fact the survey was done in capital areas, where basically is no need to utilize the services from small companies operating countryside. The most positive towards liberalization were the Tallinn respondents, 47 percent stated deregulation would affect the market positively, while only six percent was against the change (47 percent could not say). Interestingly the most negative were the respondents from Sweden, as 11.4 percent noted deregulation would have negative influence on the market. Danish counterparts were the most unsure, 60.9 percent could not comment the situation.

Although studied market areas have some discrepancies, several similarities are unfolded. The fact respondents consider same three factors as the most important gives an idea to new market entrants to which circumstances they need to pay special attention to. However, for example ticket pricing is not only in the hands of operator, as often the government is deciding the prices. In these cases the operators can only hope the decisions will support railway transport.

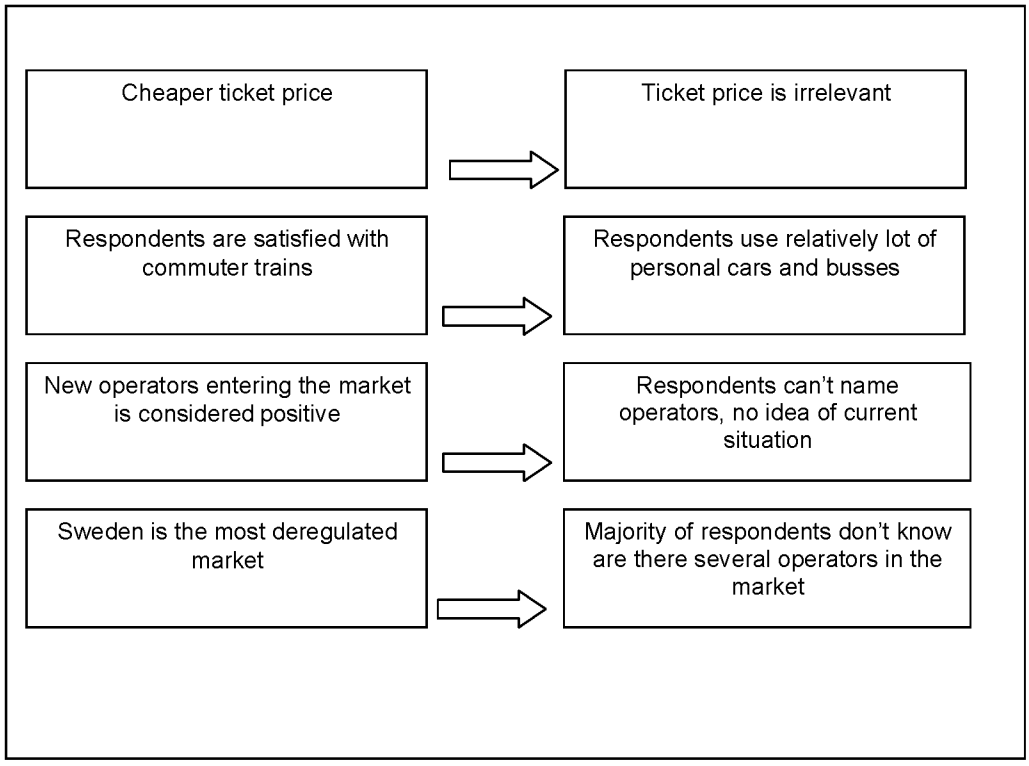


Figure 25 Causality, factors which are not in line with each other

There are some discrepancies when analyzing the respondents' answers (see figure 25). Ticket price is considered important factor affecting to customer satisfaction in Estonia and Sweden. Controversially in Denmark the ticket price was considered not to be important (price does not have an effect whether people take the train or not) but when asked the actual realization of ticket price it was really poor. Respondents were mainly satisfied with commuter trains, in Stockholm and Copenhagen train was the mostly preferred transport mode. However, people were using relatively often cars and busses, although they stated to prefer to use the train. In Stockholm busses and cars were used together by 42.9 percent of respondents. In Copenhagen together 31.9 percent of respondents used busses and cars. When the respondents' opinion was clarified concerning the new operators' entering the market, it was seen quite positive and several positives effects were named. Even though the introduction of new operators gathered positive feedback, only few respondents were aware of current situation or could name operators in the passenger railway market. Even in Sweden where the deregulation has occurred at least partly for several years, respondents did not know whether there are several operators in the market. Furthermore they could not say whether the market has changed.

6 National Peculiarities in the Passenger Rail Sector

This chapter introduces the main national peculiarities unfolded in expert interviews with some reflections from customer satisfaction survey. The results of expert interviews are described more carefully in Chapter 7. In order to highlight the national characteristics, the countries are approached country by country.

61. Sweden

Sweden is the most advanced of the three countries studied in this research when comparing the stage of deregulation. Sweden was the first country that separated the construction and administration of the railway infrastructure both organizationally and legally from the train operations. Sweden has completely opened both railway freight market and railway passenger market to competition. Approximately 25 percent of total train kilometres in Sweden were under competition in 2010. New operators have entered the market via competitive tendering system; first one occurred 1999, almost 10 years after the Transport Policy Act. Sweden has proceeded slowly, step by step in deregulating the railway market and has succeeded in the process.

The opening of rail passenger market was realized in October 2010. Earlier the market was partly opened already for example via tendering, international traffic and traffic on weekends. There were already several operators acting in the rail passenger transport before the complete liberalization. The effects of liberalization have mainly been positive to both passengers and operators. Sweden was able to increase passenger volumes during the deregulation period of 1988-2009, especially in regional (short-distance) transport. In Stockholm area it is common to use public transportation modes daily as there is a lot of traffic on the roads. Well functioning metro system in the capital together with the commuter trains are in everyday use and a common way to pendel.

The rail network is heavily crowded in Sweden and especially in the capital region. The length of rail network in Sweden is over 12000 km, longest of the three countries concerned in the research, 90 percent of it is electrified. In Stockholm a new tunnel for commuter trains should be ready in 2017 which will decrease the pressure on the crowded rail network. Sweden and Denmark have a peculiarity in the infrastructure in form of the Öresund Bridge connecting the two countries together, it enables everyday travelling and working in another country.

Locomotive drivers are educated in public schools and are the one professional group benefitted the most from market deregulation. Their salary has increased and locomotive drivers can choose where to work as there are more companies than before. Companies are also willing to pay more when there is acute need of employees. Negative aspects of deregulation have been unfolded by the labour unions.

6.2 Estonia

Estonia is considerably smaller country when compared to the other two countries of this research. There are fewer residents and only three companies provide railway passenger transport. GoRail only operates international traffic to Moscow, Edelaraudtee operates long-distance with diesel trains and Elektriraudtee has electric trains and operates in the Tallinn city's region. Due to the small size of the country only the city of Tallinn has regional transport with trains.

The infrastructure causes limitations to the railway traffic in Estonia. The electrified network is only 132 kilometres long and other parts of the rail network are operated with diesel trains. There have also been large investments to improve the infrastructure to be able to increase the travelling speed. Increase of speed makes the trains more competitive alternative to cars, when travelling times become shorter. Other problem is the gauge of 1524 mm, which is different from other European countries. Also the locomotives and rolling stock used are very old, first new trains are already ordered and expected to arrive during year 2012.

The share of passenger services is considered low as the railways of Estonia are mainly used as transit route of Russian freight. In Estonia busses are the most used form of public transport. Car is the most used transport mode and an own car is stated as a status symbol. Cars are also affordable, there are free parking spaces and no traffic charges. People who travel with public transport are perceived poor, old or too young to drive a car.

Although the Estonian rail passenger market is open for new entrants, it is not presumable to have new operators as the potentiality of earning profit is minimal. Estonian railways were privatized in the 1990s. So called second privatization occurred in 2001 when 66 percent of ER was sold to foreign investors, in 2007 the government bought the company back to its possession. Today two of the companies operating in the passenger sector are privately owned (GoRail and Edelaraudtee). The rail passenger operations are heavily supported by the state and companies rely on PSO contracts.

The labour unions are against deregulation and privatization of the state owned company was considered to have a negative influence. The number of employees has decreased and also the passenger volumes have gone down. Locomotive drivers are trained in the companies as Estonia does not have a public school for locomotive drivers. For an employee it is not easy to change the company where to work after the training is done in one company. Furthermore, the unemployment rate is high so there are hardly any open positions.

6.3 Denmark

Danish passenger rail market has various peculiarities. When compared to other two researched countries, Sweden and Estonia, Denmark is lagging behind in the progress of deregulation. Estonia deregulated the market already in late 1990s, whereas Sweden has proceeded slowly, but successfully. The process was started in Sweden already in 1988 and it came through in October 2010 when passenger rail market was

totally opened for competition. Denmark has also taken the first steps as the first tender was awarded in 2002 and operations started in 2003. However, the fact market is not totally deregulated influences on the peculiarities.

One of the biggest problems and therefore also a peculiarity in Denmark is the condition of infrastructure. Many parts of rail network are several decades old, which influences on the travel times as well as quality of travelling. The situation should improve in next seven years as major projects should be finalized in 2018. Among these are the Circle line to Copenhagen Metro and Fehmarn Bridge, which will connect Denmark and Germany. Circle metro line ameliorates the accessibility of city centre: Although public transportation is rather well organized in Copenhagen, experts still wish to see more integration between transport modes. Circle line will respond to demand, as it connects S-tog and metro more practically as it is now done. Although infrastructure is considered to be in a bad shape, amount of passengers has increased: During the first half of year 2010, long-distance traffic increased three percent, while Commuter traffic (S-Tog) attained five percents' growth (DSB, 2010). Experts are expecting even more growth in the future, once the problems with infrastructure are solved. It was noted the rail network capacity creates problems, as already now some areas are facing bottlenecks. Especially this concerns the capital area, where several actors are utilizing the same parts of the network. Therefore, several inhabitants of Copenhagen are using other than motorized modes of transport, bicycling. Due to congestions, in 2008 only 32 percent of families living in Copenhagen city had a car, while in whole Denmark the percentual figure was 59.6 (Statistics Denmark, 2010).

Although the amount of members in Danish labour unions has halved, unions still have rather strong influence on market situation. As concentration is high, meaning certain industry's workers are under one or two unions, it creates the feeling of fellowship between the employees. As another import aspect was noted the unions' flat structure. Once there is one person responsible for certain area, for example locomotive drivers, the employees can call directly to this person, who really knows what is going on in the market. This facilitates the functions inside the union and guarantees quick and effective service to members. Especially satisfied unions are with the high salary level in railway market, particularly among locomotive drivers. Private companies are paying more than governmental operator, which has increased the number of transfer between companies. The status of locomotive drivers has also changed in educational side, as the system changed three years ago and two public schools were established. Today all locomotive drivers get the 10 month basic education in these schools. After the graduation they join the workforce of certain railway undertaking in order to learn the practicalities. Market actors seemed to be rather satisfied with the situation, only the fact it takes some months more than before was noted as a drawback. Basically this means the operators need to know well beforehand when someone is retiring, in order to have a replacement ready.

The Danish market has currently nine actors: Five small private companies operating in private networks, governmentally owned DSB and DSB S-tog, and Arriva and DSBFirst, who have entered the market via tendering processes. The first operations in the tendered area started in 2003, when Arriva entered the passenger rail market. DSBFirst followed in 2009, when they started to operate Kystbanen. Although two private companies are already operating in tendered areas, operators are waiting tenders for other areas. It is expected this might happen in Jutland around 2015-2020,

mainly due to the fact that the rail network is now under repair. However, as it is government who is doing the decisions, no one actually knows how the market deregulation will proceed. There has been some talks the market could be deregulated already in 2011, but that has not been confirmed. However, as soon as government decides to move towards more open market, for sure various operators are interested in operating in Denmark. Especially this is noted among small private companies, who are able to act quickly due to their size. Because big operators have a complex organizational model which might slow down the rate of change, small operators are more innovative.

7 Outcome of interviews by selected themes

This chapter describes the standpoints which were unfolded in expert interviews. The interviews were organized in three different countries, Sweden, Denmark and Estonia. Altogether were met 17 organizations represented by 19 experts. Additionally, one interview was done by phone. In Sweden were interviewed six organizations, including three operators, the infrastructure manager and two labour unions. From Estonia we were able to gather five interviews, and among the interviewees were persons from two labour unions, one operator and two representatives from governmental bodies. In Denmark were met six organizations consisting of two labour unions, two operators and representatives from two governmental agencies. Based on this database, we were able to gather genuine and versatile information, which provides interesting insights to North-European passenger railway market. In the following subchapters the main topics are approached as aggregates. Tables presenting the interviewees' comments can be found from appendices 12 – 30.

7.1 Locomotive Drivers

Locomotive drivers are the core of all railway transport. Earlier companies were able to educate the drivers by themselves, but due to legislative demands of the European Union the education was standardized. However, there are still various country level peculiarities: For example, in Estonia all locomotive drivers are still educated in railway undertakings. Both in Sweden and Denmark there are public schools providing education, which is open for all companies' representatives. This facilitates the availability of the drivers. Besides, a good salary level as well as lucrative benefits attracts people to become a locomotive driver.

The availability of the locomotive drivers has improved during the last years due to public schools' introduction to researched markets. When private operators entered the markets many of them were lagging workforce, especially locomotive drivers. Based on the interviews the reason behind is the prejudice: Governmental operator is seen as a safe and enduring employer, whereas private operators are more disposed to market fluctuations. The fact that governmental operator was forced to lend workforce to new entrants rescued the private operators. After few months when operations were started, the situation normalized. Today, the private operators are doing rather well in researched countries. They are also desired employers, because the salary level is higher and the working conditions and benefits are good. Locomotive drivers working in private companies are noted to be satisfied with their situation. Some even feel due to small and flat organization, the work community feels like second family. Previously operators were able to educate the drivers themselves, which was considered as one of the major changes in railway market education. At that time educating a locomotive driver took four months or even shorter period of time if that was needed, today the theory phase takes several months, depending on country. In addition to theoretical knowledge, students need to pass a training period, which is organized in the companies they are working for. Once locomotive driver has passed the school, he / she is able to driver one locomotive type. In order to widen the range of locomotive driving entitlement, drivers need to learn all different locomotives one by one.

Based on the experts' comments, locomotive drivers' salary levels have changed. According to interviewees, before the trend of liberalization the salary level was same for a certain job. Today the levels are varying between the companies, as private operators are paying more than incumbents. Therefore, locomotive drivers' esteem towards the private operators has improved during the last years. However, there is a group of older employees who are satisfied in working for the government, the civil servants. They have a good contract, which gives them good support in the case of redundancy: They get paid several years' salary and a good pension. Although their employer is the incumbent, governmental operator might lend them to private companies. One factor which is also affecting on the satisfaction level is the benefits.

Based on experts' opinions, modernization of rolling stock has created significant changes to railway market. Earlier one person was able to perform only one task, but today employees have a wide range of knowledge, which enables them to carry out several persons' jobs. Naturally the modernized locomotives also influence on the situation: If a technical problem occurs, today the drivers cannot do a thing because the trains are electrified. Although deregulation was noted to have a negative influence on benefits (it is one of the first options where to cut costs due to increased competition), on the other hand it was stated as one of the competitive advantage when attracting employees. Long working period in one company was also stated as a benefit, due to the fact the work community feels like family which increases the satisfaction level. However, also some negative sides unfolded: Pension system has deteriorated, because the age of retirement has increased from 60 to 65. Also the operators employing only few union members were noted to offer lower level of benefits to their employees.

7.2 Advertising

Selling advertising spaces in transportation vehicles (busses, trucks and rolling stock) is a possibility to earn money for transportation operators. The visibility of advertisements is good as the vehicles move around and the size of advertisements is normally large. Based on the expert interviews, advertising in the companies is done mainly for two reasons. Either to attract more passengers with adverts about own operations, or selling advertising space to external companies in order to earn money. Advertising of own operations is done mainly in own traffic systems for example trains, busses, newspapers and Web-pages. One operator only chooses adverts from other companies to their trains that have something to do with culture or environment. Private operators were stated to advertise more than state owned companies. Some operators handle their advertising campaigns through advertising companies. Mainly advertising is done in quite small scale and it is not seen as way of earning profit. Advertising is stated to be an idea for the future as some companies do not advertise or sell advertising space for other companies.

Advertisements are often seen as by-products of other operations. It is stated that when advertising is minimal, only accrued expenses can be covered. One of the experts interviewed said that without the revenue from the advertisement, public transport would become more expensive to the county and possibly also for the passengers. Many operators noted they only provide traffic information and advertising is not done at all to increase passenger volumes. New information system is bought to one company and those will provide both commercials and traffic

information. Commercials are needed as those will cover the utilization costs of the new system. Controversial is that some told that company cannot mix advertisements with traffic information. Few operators have cooperation with other organizations and perform campaigns together to promote for example festivals. One company had performed large scale campaigns to promote travelling to work by train with the help of university students.

7.3 Background of the Competitors

Deregulation of railway passenger market enables new entrants to enter the market. In some countries there are already several operators in the market and new ones appear all the time. In some countries state owned incumbent still have a monopoly position in the railway passenger market. Mainly two kinds of companies enter the railway passenger markets: New small companies and old governmental companies. Small companies often appear as subcontractors. There can be seen a lot of movement in and out to the market by small companies. Small companies have often a short life span, they appear to the market but disappear after a while. Small companies can also merger to form one bigger and more competitive entity. Consortiums of companies are also formed to be able to bid for a certain tenders. Often new entrants in certain market are not totally new operators, but old governmentally owned monopolies. These companies often enter other countries' markets to test them. For all companies can be stated that one motivator to enter new market is money and making profit. Also winning tenders is a way of entering the market. Some operators might have operated before in the freight market but decided also to enter the passenger sector. One expert also stated that investment money is available and that way new comers might appear.

7.4 Local ticket as by-product

Ticket price is a continuous discussion topic among passengers and today there are several different kinds of tickets and pricing models between companies and cities. Passenger traffic is often supported by the state to ensure adequate and socially sustainable public transport. When talking about travelling in liberalized market with several operators the competition for passengers is higher and new models for ticketing arise. Some experts stated the price of ticket is to be decided by the company responsible for organizing the traffic, not by the operator who runs the traffic (it depends on the contract type). New innovations are two tickets together where local ticket is included when you buy a long-distance ticket. Cost of ticket differs and in some cities passenger can use one kind of ticket in several transport modes for example bus, metro and train. Customer pays the ticket but it would often be more expensive without support from the region. One railway undertaking has innovative idea about "work ticket" that could be bought via company you work at and it would be approximately 40 percent cheaper.

7.5 Maintenance

Good quality and availability of maintenance for locomotives and rolling stock is needed to ensure safe and well functioning operations. Nowadays there are several actors providing maintenance services and companies do not have to include it in their own core activities, if it is not especially wanted.

Due to experts opinions maintenance is or has been a major concern in many countries. Often the facilities are /have been owned by governmental operator. There has been improvement and the situation was stated to been the most difficult in the beginning of the deregulated time. Nowadays maintenance services are well available and halls can be rented from governmental operator. Some companies have their own facilities to do maintenance and that is stated as an advantage. In some companies maintenance is bought from a maintenance company. Actors in the maintenance sector are often big international companies. Also manufactures of locomotives and rolling stock provide maintenance services. Maintenance companies have also bid for tenders together with operators for example in Stockholm the tender for the metro was won by a operator from Hong Kong and maintenance company from Norway.

7.6 Labour Unions

Over the years labour unions have forcefully present employees' case, especially in transport markets. Due to the specific nature of the work in the railway market, especially locomotive drivers, unions have been able to impinge on contracts and laws. Therefore, unions' attitude towards deregulation can have significant consequences on the final outcome. Generally unions have rather unanimous attitude towards deregulation: Railway markets should not be liberalized as it creates more capitalistic markets. As main reason was stated the fact market is functioning better, if only one operator is providing services. Deregulation was noted to change the operators' attitude towards market, as the concentration is changing from serving passengers to doing business. Therefore, the benefits to passengers are hard to notice. Also the fact that railway market is changing from one company performing all functions to a market, where various functions are outsourced, was noted as a negative development. One of the biggest problems is the fact that there are so many different actors on the market. Actors are not sure who is responsible for certain functions, which creates an atmosphere that all are pointing to someone else, when a problem arises. Interviewees also pointed out the restructuring of the market should be done carefully, as some functions are better to be kept in governmental agencies, while others might operate more cost-effectively if formed as companies. Financing the passenger traffic was also unfolded. Based on interviewees' standpoints the fact freight market is providing money to passenger traffic via subsidies has a negative influence on the overall railway market. This is because lines might be closed down due to low amount of freight traffic. Although the attitude was mainly negative, few weakly positive comments were also received: All unions did not support the opinion everything was better before deregulation, mainly because salary level and overall working conditions have improved.

Although few experts noted the working conditions have improved significantly during the last years and situation was stated rather good, some drawbacks were also

unfolded. As the main problems came forward the number of personnel in trains and the splitting of the working hours. Lack of personnel, especially in situations, when only one person was responsible for whole train was considered an issue of safety: When trains are transporting some valuable items, for example money, in order to improve the security more employees should be present. As commuter traffic has the biggest market share (for example in Estonia 63 percent of passenger transport is commuter traffic) and one of its characteristics is heavy inbound traffic in the mornings and concentration on outbound movement in the afternoons, employees are requested to do partial working days and fragmented working weeks. Overall union representatives commented that during the last years there have been some debates concerning the working environment and working hours.

The fact that fewer persons are operating in the railway market has directly affected on the unions' amount of members. In all target countries, namely Sweden, Estonia and Denmark, the number of union members has declined during the years. Due to modernization and innovations, fewer people are needed in the trains; furthermore, the need for maintenance has declined due to improved technology, which has reduced the amount of needed personnel in maintenance facilities.

7.7 Infrastructure

Infrastructure's condition and needed investments has been one of the hottest topics in the markets. Although in Sweden and Denmark the governmental organization (in Sweden Trafikverket and Denmark Banedanmark) owns the main infrastructure, smaller areas are owned and operated by private companies. In Estonia even larger parts of network are possessed by operators.

In all researched countries infrastructure was stated to be in a bad condition, mainly due to its age. Outdated infrastructure creates problems, especially during winter time, when extra maintenance is needed in order to run the trains punctually. Old switches and signalling system were noted to create problems; this is expected to change in near future as European Union is harmonizing the systems and countries need to update the networks. This has changed the overall attitude towards infrastructure, as earlier governments' strategy was to *maintain* the network, and now it has changed to *develop* the network. The main problem is with financing the required alterations, as available funds cannot cover all needs. According to interviewees the railway undertakings and local authorities are paying about 15 percent of the maintenance and re-investments of the tracks, which mean that the major part is coming from tax payers. Experts thought the capital areas where the passenger volumes are higher are lagging behind in investments, as special attention is paid to countryside. However, the capital areas' infrastructure is under construction. In Stockholm the tunnel for commuter trains should be ready in 2017, and Copenhagen follows with Circle Metro Line in 2018. All parties are aware the technology costs, but there are two choices: Either you need to accept the costs, or you have to get used to delayed trains.

In all three target countries trains' speed was unfolded in several interviews. The increased speed was noted important, due to the fact it improves railway transport's possibility to compete with cars. In this case the passenger volumes are expected to grow. However, due to the fact high-speed trains are conquering the markets also in

Europe, the target speed is increasing together with the attained speed. This would also facilitate the transit traffic, as both Estonian and Danish networks are heavily utilized as transit markets. One of the biggest construction projects is going on in Denmark, where they are building a bridge connecting Denmark and Germany. This will at least halve the travel time and increase the amount of traffic.

Concerning the electrification of the rail network, it was noted the diesel locomotives are more attractive due to fact those can be used in whole network. Additionally, it diminishes the risks related to investments. Both in Denmark and Estonia the electrified network is rather limited, which hinders the utilization of electric locomotives. However, in Sweden 90 percent of network is electrified (SJ, 2010), which provides good market situation for electric traction.

7.8 Cooperation

Previous studies have shown deregulation might restrict cooperation. As actors are unsure about the dividing line of responsibilities, the level of cooperation gets easily deteriorated. The level of cooperation, as well as overall attitude towards collaborating with operators divides the opinions. Some experts think cooperation is lagging behind also inside companies, as different actors are not aware what the others are doing. For example, personnel responsible for traffic management do not know what is going on in maintenance side, which hinders the overall operations. Concern was unfolded towards to passengers' status in the context, because the customer service might be jeopardized if the cooperation is not functioning well. For example, in the areas where few operators are working, in order to provide good customer service the schedules should be integrated. If operators are not able to cooperate, integration might not work and customers have to deal with the problems. However, few interviewees have already noticed the importance of collaboration: Although companies are competing, in order to survive in the changing markets they need to have good connections and even cooperation with their competitors. In the cases where cooperation was utilized, it was noted good and close. It also has to be kept in mind in the case of tender contracts, operators and governmental bodies need to cooperate, because the contract call for it.

Generally the cooperation with governmental authorities was considered positive. Due to contract types operators are having regular meetings with infrastructure manager as well as other governmental bodies. Service was noted to be available when needed, and all counterparts had a feeling they were treated equally. Only problem what unfolded during the interviews was the cooperation between governmental authorities: As the markets have faced so many changes in such a short time, actors are not sure which functions belong to whom. Therefore, demerging functions inside the governmental actor should be avoided, because more concentrated structure would facilitate the decision making process.

Although operators and governmental bodies think there is not so much cooperation with unions as they are working all the time in the backside, the cooperation was stated being good. Basically, there are only few occasions when unions are contacted, for example when contracts are made, when their opinion is needed for certain matters or when some disputes are going on. However, during the last years there

have not been so many problems, so unions have been mainly working quietly securing the employees' rights.

7.9 Operating Contract Type

In railway passenger markets are recognized three different market types. The market can be monopolistic, when only one company is operating in the network. In the other end is totally deregulated market, which enables free competition between companies. The third option between these two contraries is competitive tenders, which can be either gross cost contracts or net cost contracts. The discrepancy between the contract types is following: In gross cost contract the operator gets no revenues from ticket sales and revenue risk is on state's side. In net cost contract the operator gathers the ticket sales, which also creates the revenue risk on their own side. (Alexandersson & Hulten, 2009; West, 2010)

Both gross cost and net cost contract types are used, which states all contracts are solitary. Although companies would be operating in net cost contract, which means the operator gets the ticket revenues, in addition operators might receive subsidies from government. This guarantees the operations also during the times of the day, when only few persons are travelling, for example in commuter traffic the early afternoon hours. Government support is agreed on an annual basis. The length of contract also varies between agreements and countries, generally it is between five and 10 years. Often there is an option for few additional years, which means if contract is managed well, the operator have a chance to operate also the extra years.

Passenger volumes are an important part of traffic anticipation. Predictions are largely done by adding to previous data little extra. Some companies have an automatic counting machine in all of the trains, which gives the operator an exact number how many passengers have been using the services per day. Some are doing the counting only few times a year. Small operators, especially the ones operating in own private network can rather freely decide the number of trains, whereas for larger operators more strict calculations are needed. Nonetheless, all operators are doing business, so in order to increase the number of trains there needs to be a great increase in passenger volumes. This has happened during the last years, as throughout the Europe the railway figures have increased. Same trend was noted in this research, as in all countries respondents stated the volumes have sharpened. Interesting observation is that the recession has had a positive influence on the passenger volumes: Once families need to cut costs, the second car is often sold which increases the number of people using public transport.

8 Discussion

Although European Union endeavours to harmonize the passenger rail markets, countries have own characteristics which influence on the outcome. Good example is the locomotive drivers' education: Although Directive 2007/59/EC objective was to have uniform license in order to facilitate the future possibilities to drive trains in several countries and confirm the identical structure of education, Estonia has not proceeded according to the plan. At the moment education is only organized in railway undertakings. On the other hand, some countries are obeying the rules according to the plan, for example Denmark and Sweden belong to this group. EUC Syd in Denmark and Järnvägsskolan in Sweden and providing basic education in order to become a locomotive driver. Although operators are rather satisfied with the situation as it gives equal rights to all parties and facilitates entering the markets (earlier only governmental operator had a right to educate locomotive drivers), some drawbacks were noted. In earlier model where companies were also able to educate drivers themselves, they could reply even to surprising situations by hastening the process. Once all locomotive drivers need to pass the same qualifications, the quality of work might become uniform. However, as all operators have their own corporate cultures and habits to perform operations, the final level of knowledge is only learned by working in a company.

Locomotive drivers have gained ground on the railway market. Deregulation has increased the salary level and operators are competing about the drivers by offering better benefits. Working conditions have become competitive advantage, which many operators are utilizing when trying to persuade people to join their workforce. When private operators entered the markets, they had problems in attracting the drivers. This led to a situation the governmental operator had to lend locomotive drivers to the new entrant. One of the biggest problems was the personnel's prejudice: Employees regarded incumbent more secure employer, wherefore no interest was shown towards the private operators. The situation changed together with the salary level, and made new entrants more attractive. Situation has even improved further, as the private operators' employees are noted to be more satisfied with their work than people working for other operators.

When discussing about advertising, two various ways are recognized. Railway operators can advertise their services by having advertisements in newspapers, train stations or inside the trains. Another option is to sell space in rolling stock to earn money. This can be done in various ways, for example by taping the whole unit, for example locomotive or wagon to advertise a certain brand, or by selling smaller places inside the wagons. Both ways of advertising bisects the practices as well as opinions. Some operators think it is unnecessary to advertise, while some note it is a vital way to deliver information about the available services. Particularly the private operators are showing more interest towards advertising, which is due to more aggressive way of competing. As they are new entrants in the markets, in order to spread the word about their services advertising is essential. Advertising has provided desired outcome, as the passenger volumes have increased significantly after campaigns. Some operators even have special advertising budgets, which enables them to approach the topic in a more professional manner, for example help is asked from universities. As well as advertising the company, selling spaces from rolling stock in order to earn money is noted as an interesting option. Some operators are

already utilizing the possibility, while others are still considering. Especially the electronic billboards are stimulating the companies, because it is possible to combine various types of information to one board (advertisements, traffic information and so on). The utilization of electronic billboards is expected to increase in near future; additionally, operators are launching similar services to train stations and stops. However, when considering the sold advertisement places as an income, operators need to wait a bit longer: The incomes can cover the expenses, but today it is not a money-maker.

Researched countries are in a different stage of deregulation. Estonia liberalized the whole market already in late 1990s, whereas Sweden finalized the passenger market deregulation only few months ago, in October 2010. Denmark is lagging behind, although the first tender was opened in 2002 (and operations started in 2003). One of the country peculiarities in Denmark used to be a great number of private networks, but the number has decreased to five. Today these five operators are actively working together in order to achieve more tendered areas. Due to these circumstances, the background of the competitors varies greatly. Today Swedish passenger rail market has nine actors, while the corresponding figure for Estonia and Denmark are three and nine, respectively. Basically two types of market entries can be recognized. New companies are established in order to participate in tenders, and incumbents are entering neighbour markets in order to conquer new markets. Companies can even leave different kind of tenders, and leave the option to choose to authorities. These all factors facilitate the process. Interestingly the incumbents have been rather interested in entering neighbouring countries. In Sweden and Denmark the incumbents are operating in both countries, as SJ has trains to Copenhagen and DSB has few affiliated companies in Sweden, Roslagståg and DSBFirst. Few operators have also been established on the grounds of mergers; this entry option might suffuse in the future, as markets are now confronting the era of changes. This is also noted in ticketing, where ticket prices was unfolded as one of the most important factors in customer satisfaction. Operators have realized this factor, wherefore today there exist various types of tickets and pricing models. Especially the tickets offering local ticket in addition to long-distance ticket are gaining ground. In some capitals the one ticket system is used, stating the same ticket can be used in all transport modes; the passenger needs to concentrate only on the amount of zones. Although this was noted a good and facilitating function, experts thought there is still room for improvements. One innovation could be a new type of working ticket: If ticket is purchased from own employer, the price is 40 percent less than the normal list price. Such an idea tries to attract more commuters to utilize public traffic. In this model the problem might be the operators need to persuade not only the person utilizing the ticket, but also the company she/he is working for. However, as environmental friendliness has been foreground in publicity, this type of innovations might find support from various industries.

Maintenance was perceived as an interesting topic in all researched countries. In regulated railway market all functions were under the incumbent, meaning also the maintenance was carried out inside the company. Furthermore, all facilities, meaning stations, maintenance halls and so on belonged to incumbent. Due to European Union legislative demands the governmental operators had to separate the operations and infrastructure management. Concurrently the stations and all facilities were divided between these new actors. In several countries the incumbent was given a right to possess the facilities, which has caused major debates after the market deregulation,

as the private companies have had problems in attaining the needed services. Railway undertakings owning the network as well as small operators often have own maintenance facilities, due to the fact the operations are mainly performed in certain partly closed areas. The situation is different for the actors who have gained market share via tenders, as they have entered the network which has been operated for ages by the incumbent. Today in these cases the private companies are renting facilities from incumbents; although there has been a lot of discussions going on around the topic, situation has proceeded rather smoothly.

Labour unions are recognized especially strong in transport markets. The trend concerns also the railway market, which has attained a powerful status in several European countries. This is the case also in Sweden, Denmark and Estonia. Although unions are presenting members' case forcefully, they have been able to keep good connections to other actors. Naturally, in order to have a functioning market all counterparts need to cooperate. This is also noticed in railway unions and the actions towards more fluent cooperation has been taken place. As can be expected, deregulation of railway markets has been one of the major topics for railway unions. Generally unions are against the deregulation, due to various reasons. Liberalized market is seen more capitalistic and unions are having doubts the market would function better if only one operator would attend to offering passenger services. More operators mean competition, which is thought to harm the whole industry. Once operators need to concentrate on doing business, the customers are easily left without needed service, which would harm the whole market. The fact number of actors in the market is increasing creates also problems, as counterparts are not aware who is responsible for which tasks. Although the general opinion of deregulation was mainly negative, some positive standpoints were unfolded. Some unions did not support the scheme of things that everything was better before deregulation, mainly due to the fact the salary level as well as working conditions have increased since liberalization gained ground.

Infrastructure is an interesting topic, which gathers various opinions. Due to the European Union demands all member countries are confronting requirement for construction, as the European Railway Traffic Management System (ERTMS) is suffusing around Europe. This is anticipated improvement for all researched countries, as infrastructure is in bad condition. Concurrently with mobilizing the ERTMS, governments are giving more money to various projects which main intention is to improve the network and therefore ameliorate the overall speed and quality of travels. However, the fact some countries prefer diesel locomotives was noted as a barrier, due to the fact it eliminates the need to increase electrified rail network.

Overall the cooperation between all counterparts was noted functioning. Especially the collaboration with governmental authorities was acknowledged. As the main problem between authorities cooperation was stated the lack of centralization: At the moment decision making is too widely spread, the system would work more efficiently if decision making would be more concentrated. Liaison with labour unions was described good, although the cooperation was mainly considered to be discussions about issues related to contracts. Operators were rather satisfied with unions' actions, as help was always available and personnel seemed easy to approach. In operators' side the cooperation was depicted rather ok: The contract types beget situations where cooperation is compulsory. The problems might rise in future if more railway undertakings are entering the markets. If the operators begin to compete and

act as business units, they easily forget the needs of passengers. It was also stated that personnel inside the companies should cooperate more. Now traffic controllers do not know what is happening in technical side and vice versa. By understanding the overall functions of railway undertaking the satisfaction level could increase, which would create happier employees.

In Sweden and Denmark the only way to enter the passenger rail markets has been to participate in tendering processes. However, the situation has changed in Sweden in October 2010, when the market was totally liberalized. So far two railway operators have been able to enter the Danish markets via tendering, Arriva in 2003 and DSBFirst in 2009. In Sweden several companies have entered the market via tendering, for example the Stockholm commuter traffic has faced strong processes. Both contract types (gross cost and net cost contracts) are utilized in Denmark and Sweden, the situation depends on the contract made with the state. By the same token, duration of contract varies. According to this research the main duration is between five to ten years plus an option to continue the operations for few years. Experts were rather satisfied with the situation, but some drawbacks were noted. If the railway operator is expected to buy rolling stock, longer contract periods could attract more bidders during the tendering process. Passenger volumes were considered as an important part of traffic anticipation. Often predictions are based on earlier years' data, and some additional is added. Few operators have introduced an automatic counting machine, which provides real time data about the number of passengers. Although the railway undertakings are doing business and therefore the number of needed trains is carefully calculated, in case of extra demand the companies operating in an own network are more flexible in adding the rolling stock.

Customer satisfaction survey provided interesting insights. In all three target cities, Stockholm, Tallinn and Copenhagen, respondents were more satisfied with commuter train system than the whole public transport. Equally, ticket price, trains' punctuality and itineraries were unfolded as the most important factors affecting the journey in all researched cities. Ticket prices divided the opinions: Tallinn respondents noted it is quite or very important, Swedish thought it was somewhat consequential while Danish respondents stated it is not important at all. However, once they were commenting how well the factors have been actually realized, the results were vice versa. Estonians thought ticket prices are in rather good or very good level, while Swedes were a bit more unsatisfied. The most discontented with ticket prices were Danish respondents, who thought ticket pricing is realized really poorly –although they earlier informed the ticket price level does not influence on satisfaction level. Preferred transport mode divided viewpoints. Car was considered as the main mode of transport in Tallinn, where almost half of respondents stated they prefer to use car. Bus was ranked second preferred option, following by train. The situation was vice versa in Copenhagen, where almost half of respondents informed to prefer train. Tram was unfolded as second, bus third and car only fourth. Stockholm was a mixture of these two, as the most preferred mode of transport was noted train, second car and third bus and metro.

When requesting opinions of deregulation, respondents were not well aware of market situation. Signifying the operators was discovered almost impossible task, as only few respondents were able to specify even few companies. However, once the list of operators was given to them, majority of the respondents recognized the biggest operators. Basically this means the situation in the market has not changed, as

respondents have not paid special attention to changes. The most positive towards liberalization were the Estonians, while the most negative response was gathered from Sweden. Danish counterparts were unsure and could not comment the situation.

Interestingly, based on this research Estonia was ranked as the best market in various factors, for example train punctuality was on the best level. This is especially significant as most of the Estonian respondents were young students, who are often noted as the most demanding group of people. Although all markets have confronted the first private operators one way or another, passengers are not well aware of changes. This could mean in passengers' viewpoints the market structure has not changed, and market is functioning like earlier. However, as the survey was conducted in capital cities, the results could be different if data would be gathered also from smaller cities. For example in Jutland, Denmark few private companies are operating on their own network, and most probably the inhabitants living is such an area would recognize the companies.

9 Conclusions

9.1 Summary and Main Findings

This study has provided insights into the passenger rail markets' transient situation in three countries, Sweden, Denmark and Estonia. The main purpose of the study was to research the progress of deregulation, which was studied via literature analyses and brought to empirical level by scrutinizing experts' standpoints. In order to fulfil the level of knowledge and guarantee a thorough understanding, customer satisfaction survey was organized in the capital cities of the target countries. The progression of deregulation was identified and social consequences were unfolded. Furthermore, the status of commuter and long-distance transport in case countries was discussed.

In accordance with the European Directive, Finland opened the international passenger transport for competition on 1st January 2010. The national passenger rail market is still regulated and operated by the incumbent, VR-Group. Due to the fact Finland is located as an island in Northern Europe, railway operators have not shown any interest towards international passenger rail transport operations in Finland. Although this study does not directly approach the Finnish market, it reflects the results gathered from Sweden, Denmark and Estonia and attempts to highlight prospective future.

Study's empirical data was gathered by utilizing two research methods. Customer satisfaction survey gathered the standpoints of passengers', while semi-structured theme-interviews tackled the experts' viewpoints. Research was qualitative case study analysis; the qualitative method was employed because the data needed for answering the research questions were qualitative by nature. In addition, when researching novel topics, qualitative case analysis is a recommend way to gather information (Eisenhardt, 1989). Altogether 18 interviews were done, seven in Sweden, six in Denmark and five in Estonia. The sample gathered from case countries consisted of seven operators, six labour unions and five governmental authorities. Collectively, 10 companies were contacted in Sweden, 14 in Denmark and seven in Estonia; therefore response rates were 70 percent (Sweden), 42.9 percent (Denmark) and 71.4 percent (Estonia).

Although deregulation is rather young field of research, it has inspired researchers' world widely. Due to the fact railway freight deregulation occurred earlier, most of the studies are concentrating on freight side. Some studies are conducted concerning passenger rail transport and especially market deregulation, but often they concentrate on customer satisfaction surveys. This study tackles the gap by evaluating the situation by utilizing standpoints of both experts and passengers. Additionally, previous studies have mainly focused on second-hand data and literature analyses. Therefore first-hand data gathered via interviews and surveys can be seen as attenuating the existing empirical gap.

The deregulation process has proceeded differently in Sweden, Estonia and Denmark. In Sweden the process of deregulating the railway sector started in 1988, when the new transport policy decision was made. Result of the policy was separation of

infrastructure from the train operations both legally and organizationally. Firs entrant besides of the national incumbent SJ in the rail passenger market was introduced 1990 via competitive tendering. First tender was for regional traffic and after the results were positive, more operators were introduced to the market. The deregulation has realized in phases during the past 20 years. The railway freight market was opened to competition in 1st July 1996 and rail passenger market was completely opened in 1st October 2010. For example international traffic, and traffic on holidays and weekends had been opened before the complete deregulation of the passenger sector. Today, any railway undertaking with a registered office in EES or Switzerland has the right to operate passenger rail traffic in Sweden. In Estonia the privatization process of the railways started in 1996 leading to the splitting of the state owned incumbent ER to several entities in 1997. Passenger carrier Edelaraudtee was then established and privatized. In 2001 occurred the second privatization of ER when 66 percent of the company was sold to foreign investors. Privatization led to situation where state only owned short-distance passenger operator Elektriraudtee and part of ER. In 1997 the state acquired ER back to its possession, in order to be able to apply funding from the EU to develop the poor state of rail network. In January 2009 the rail network maintenance and traffic operations were separated through subsidiaries. Denmark has not taken its deregulation process as far as Sweden or Estonia. There are private companies operating in the railways but the state owned incumbent DSB still have over 90 percent market share. Regional companies have approximately 10 percent market share. In Denmark there is an agreement made with DSB stating only 15 percent of the railway lines can be put under competition. Privately owned rail networks are peculiarity of Denmark where a private operator can organize the kind of rail passenger transport it wants.

Passengers' and experts' opinion concerning the deregulation was mainly positive. Although deregulation was stated as a positive thing among passengers, the respondents mainly could not say whether markets have confronted some changes. Even in Stockholm where several companies are operating in the market, passengers could not comment whether various operators were offering services. Furthermore, it was noted impossible to name the operating railway undertakings. However, when a list of operators was presented to the respondents, they recognized the railway undertakings and stated to having used their services. Experts interviewed were mainly operators acting in the market and their opinions were naturally positive. Interviewed labour union representatives were the ones who unfolded the negative sides and had mainly been against the deregulation in all the countries. Their concerns were mainly concentrating on lagging service level when companies concentrate on doing business and pursuing financial profit. It was stated that the benefits from deregulation to the rail passenger sector are difficult to see.

Passengers noted various factors which are expected to change when competition increases. Ticket prices are estimated to become lower, and new itineraries and more frequency to existing lines might appear. The liberalization has also affected to the employees' salary level. Locomotive drivers have benefitted and their salaries have risen; furthermore, changing the company is easier and more opportunities are available. There are also groups of employees who have not benefitted from current market driven situation. Many supporting activities have been outsourced from the railway undertakings. Operators are often reorganized to retain only core activities inside the company. For example, cleaning and maintenance is often eliminated and people working in these entities are not working anymore in the railway industry.

Such tasks are included in the service sector and their salaries have had the tendency to decrease when compared to the time they were employed by a railway company. As cities are growing and demand for residential housing accrues, suburbs nearby the cities are growing. This fact increases the volume of people travelling to work from regions to city centres. As there is a limited amount of parking spaces and capacity in the roads, there is an increasing demand for public transport. Supporting public transportation is also argued with environmental factors. Fluent and frequent traffic systems are needed to carry large volumes of people and trains are suitable for the task. Developing the infrastructure and investing to trains, locomotives and rolling stock is considered to be very expensive when for example compared to busses. Financing the large investments often holds the decisions to execute development plans. It can be emphasized that all the three cities researched had good and relatively functioning public transportation systems, but improvements are always needed and desired.

Passengers were asked about their general evaluation concerning the commuter train transport and positive feedback was received. In all three cities respondents were quite satisfied with the commuter train traffic. In Tallinn the mainly utilized transport mode was the car, which reflects by lowering the satisfaction. Commuter trains are not used as commonly in Tallinn than in the other two cities; it has to be noted that Tallinn is the only city in Estonia where commuter trains are operating. Furthermore, half of the respondents in Estonia were satisfied to the commuter trains. In Stockholm little over half of the respondents thought commuter rail transport is organized quite or very well. The most satisfied passengers are found from Copenhagen where majority of respondents considered commuter train system functioning well. The three most important factors affecting to customer satisfaction were quite similar in all the three countries with minor variations. As the most influencing factor in Tallinn was the ticket price, trains' punctuality was unfolded in Stockholm and Copenhagen. In Tallinn punctuality was ranked second, in Stockholm the fact how well timetables encounter to travel needs, and Copenhagen seat availability were considered important. As thirdly influencing factor were stated the timetables' responsiveness in Tallinn and ticket price both in Stockholm and Copenhagen.

There are different approaches how countries have prepared to the market deregulation and confronted the new situation. Depending on the country, the stage of liberalization is different and some have encountered more difficulties than others. In researched countries the liberalization has proceeded at least on some stage from a monopolistic situation with no competition. The fairly new situation has brought challenges at least in the beginning of deregulated times. It can be stated that if a country is not prepared with adequate measures, difficulties are more likely to appear. When new company emerges to the market, various challenges have been noted: For example availability of employees, for example locomotive drivers, and lack of maintenance facilities. Lack of personnel was in many situations covered with temporary staff from national railway undertaking and in long term by rising salaries, in order to make the new operator more appealing for the employees to change the company. Some companies have now own facilities for maintenance or they are renting facilities of state owned railway undertakings. The situation has stated to be improved from the beginning of deregulation. When operations are handled via tendering, regulations are made to ensure the employees transfer to the next company who wins the next tender. The researched countries have some similar challenges irrespective of the market deregulation stage. For example the condition

of the infrastructure and bottle necks in capital areas caused delays; there is demand for investments and reinvestments. Signalling systems were also stated as important development targets. When the infrastructure is in good condition, the speed can be increased, which will make travelling with trains more attracting to passengers. Also a lot of money is needed in order to develop the stations and platforms. This is particularly important in order to facilitate the disabled people's access to trains, as in some places it is almost impossible to board the trains. In Estonia the situation has been the worst concerning infrastructure but improvements are happening all the time as investment money has been received for example from EU. The situation will also improve in Denmark where several major projects should be finalized in 2018. Among these are the Copenhagen Metro Circle Line and Fehmarn Bridge connecting Denmark and Germany. In Sweden a new tunnel under Stockholm (The City Line) for commuter trains should be ready 2017.

Deregulation has brought more operators to the rail passenger market which has increased the negotiation parties for labour unions. The total number of people working in the railway sector has decreased, which has also led to decrease in the number of union members. Cooperation with the operators and the unions was stated to be mainly good. Both cooperation and competition exists between the operators. More integrated transportation systems are needed and in order to achieve this requirement more cooperation is needed. When railway undertakings want to serve their passengers, schedules should be integrated. Also was stated that cooperation is insufficient inside the railway undertakings and employees are not aware what others are doing which can hinder the overall operations. When a railway undertaking operates under a tender or PSO contract cooperation and discussions must be done to fulfill the obligations.

As mentioned in previous paragraphs the developing market situation has created both challenges and opportunities. All countries wish to see increased passenger volumes in the future. Large scale infrastructure improvements, for example City Line in Stockholm, Copenhagen metro, bridge to Germany and new trains in Estonia are future possibilities to increase passenger volumes and provide good quality services. Definitely one of the biggest challenges will be distributing of the rail network capacity between several passenger and freight operators, if the distribution systems are not developed to meet the demands. When the speed on the rail network can be increased and the durations of voyages become shorter, the competitiveness of railways operating in long-distance will be higher. Also increasing the international rail passenger transport can be seen as a challenge for the future, where improving travelling speed could help to gain market share.

9.2 Limitations and Suggestions for Further Research

Certain limitations should be kept in mind when interpreting the results of this research. Research findings are from three different countries. All the three countries have own characteristics which might affect on end results. Although different actors and organizations from the railway segment (or attached to the sector) were interviewed, it cannot be generalized that results would represent the whole industry's opinions. Mainly interviewed professionals were situated in capital regions of the

three countries. Only few operators interviewed were located further in the country. If the interviews would have been performed evenly through the countries, some other themes might have appeared. In majority of the interviews only one person participated, and due to the fact his/her opinions represent the whole company's or organization's standpoints. Persons cannot always remember all the facts; additionally, personal opinions might rise over the company standpoints. In some companies there would have been more suitable person to interview but he/she was prevented to participate. Mainly the interviewed persons were in managerial position, which might have an effect on the results. As the research concentrated on the railway passenger market, freight traffic was excluded from this research. Furthermore, it could be interesting to repeat the research after few years, in order to see whether some changes have been realized and how many railway undertakings are operating in the market.

The customer satisfaction survey was done in the capitals of the three countries (Stockholm, Tallinn and Copenhagen), which might have an effect on the results. If the survey would have been repeated in other cities, different answers might have appeared; for example, in some small city there are no commuter trains and the operating frequency is not as high as in capitals. Also persons who conducted the survey in the stations where mainly exchange students from several different countries. They did not have common language with the persons interviewed if interviewees did not speak English. The questionnaires were translated to Estonian and Swedish so if the person read all the questions and explanations the risk of misunderstandings should have been minimal.

Research's reliability was confirmed by recording all interviews. This way was ensured the availability of information for further re-checking if something seemed unclear. The interviews of this research were conducted by two persons. Interviewer's way to act might have an impact on the results. However, careful description of the analyzing process increases the reliability. Same kind of questionnaire base for the interviews than in previous researches was used to confirm the validity. The questionnaires used in customer satisfaction survey were saved and the results are in the database if something needs to be re-checked.

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Open your mind. LUT.
Lappeenranta University of Technology

Liikennevirasto
Finnish Transport Agency

09.11.2010

Dear Recipient

A STUDY OF PASSENGER RAIL MARKETS' DEREGULATION IN NORTHERN EUROPE – GATHERING LEARNING POINTS FOR FINNISH GOVERNMENTAL ORGANISATIONS TO SUPPORT PRIVATE UNDERTAKINGS

The structure of European passenger rail market changed 1st January 2010, when the market for international passenger services was liberalised. Although the national passenger rail markets are not yet opened for competition, this might happen in the near future. Several countries have proceeded with the passenger rail deregulation already earlier; however, Finland is among the countries which have not liberalised the passenger market.

The main intention is to gather experiences of passenger rail market privatisation from three North European countries, Sweden, Denmark and Estonia. Project's objective is to understand how the process has proceeded in the case countries: We are especially interested in confronted challenges and their solutions, as well as future prospects. Furthermore, we are interested how governmental organisation could enhance its service towards new entrants of the passenger rail market. The study is conducted by interviewing the company representatives in the case countries. Research is done jointly with Lappeenranta University of Technology, Kouvola Unit, Finland and the Finnish Transport Agency. The academic advisor is Prof. Olli-Pekka Hilmola from Lappeenranta University of Technology, Kouvola Research Unit.

Sweden opened the passenger railway market partially in 2009, Denmark 2002 and Estonia 2000s. Today the markets have several new operators, who have gained market shares from governmental companies. The study's intention is to understand the special characteristics the markets have confronted after the privatisation. XXXX has a strong experience in the Danish passenger rail market and therefore your contribution to this research is highly appreciated. The interview is important part of the research project as it gives valuable information how the railway liberalisation affected on the markets at actor level. Your company's experiences would help to gather genuine information. In return for participating in the research you will receive the final report published in the Finnish Transport Agency's series by e-mail.

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Finnish Transport Agency

The interviews will be conducted in Denmark in November 2010. The interview takes one to two hours. I would appreciate to receive Your confirmation of interest via e-mail to address milla.laisi@lut.fi. Thereafter we can arrange a meeting for an interview.

Sincerely Yours,

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Liikennevirasto
Trafikverket

18.11.2010

Bästa Mottagare

EN STUDIE KRING AVREGLERINGEN AV JÄRNVÄGSMARKNADEN FÖR PASSAGERARTRAFIK I NORRA EUROPA - SAMLA LÄRANDE FÖR FINSKA MYDIGHETER FÖR ATT STÖDJA PRIVATA FÖRETAG

Uppbyggnaden av den Europeiska järnvägsmarknaden för passagerartrafik förändrades den 1 januari 2010 i och med att den internationella järnvägsmarknaden för passagerartrafik avreglerades. Även om den nationella järnvägsmarknaden för passagerartrafiken ännu inte har öppnats för konkurrens, kan detta ske inom en snar framtid. Flera länder har redan avreglerat järnvägsmarknaden för passagerartrafik, men Finland är ett av de länder som hittills inte gjort det.

Uppsats syfte är att samla erfarenheter kring privatisering av järnvägsmarknaden för passagerartrafik från tre nordeuropeiska länder: Sverige, Danmark och Estland. Målet med projektet är att försöka förstå hur avregleringsprocessen gått. Vi är speciellt intresserade av utmaningar och deras lösningar samt framtidsutsikter. Dessutom är vi intresserade av hur statliga organisationen kan förbättra sin service gentemot nya aktörer på järnvägsmarknaden för passagerartrafik. Studien sker genom att intervjua representanter från företag i tre länderna. Projektet görs gemensamt med Finska Trafikverket och Villmanstrands tekniska universitet, Kouvola forskningscentrum. Handledare för uppsatsen är professor Olli-Pekka Hilmola från Villmanstrands tekniska universitet i Finland.

Den svenska järnvägsmarknaden för passagerartrafik öppnades delvid under 2009. Likande ansträngningar gjordes i Danmark 2002 och Estland 2000. De avreglerade marknaderna har idag flera nya aktörer som vunnit marknadsandelar från de statliga bolagen. Ert företag har en stark erfarenhet av passagerartrafik på den danska järnvägsmarknaden och därmed är Ditt bidrag till denna studie oerhört uppskattat. En intervju med Er är en viktig del av detta forskningsprojekt eftersom det ger värdefull information om hur avregleringen påverkade järnvägsmarknaden för passagerartrafik utifrån ett aktörsperspektiv. Ditt företags erfarenheter skulle bidra till att samla in viktig information. I gengäld för ert deltagande i den här studien kommer du att få den slutliga rapporten publicerades i den finska Transportstyrelsens serie via e-post.

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Intervjuerna kommer att genomföras i Danmark under november-december månad 2010. Intervjun kommer ta en till två timmar i anspråk. Jag skulle uppskatta om ni kunde vara så vänlig att bekräftelse ert intresse för deltagande i en intervju via e-post (milla.laisi@lut.fi). Därefter kan vi boka ett möte för en intervju.

Med vänliga hälsningar,

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The semi-structured questionnaire / Operators

1. COMPANY INFORMATION

- History
    - Business background before entering passenger rail market
- Organizational chart
- The knowledge concerning issues related to market entry before actually entering the market
- When entered the market → related to market liberalization? (Or so called old player in some other fields)
- Kindly name the company's strengths and weaknesses
- What are the main challenges you are facing?

2. ENTERING THE MARKET & MARKET ENVIRONMENT

- Why your company decided to enter the market?
    - Did the market entry have anything to do with customer orientation?
- What kind of preliminary preparations were made?
- Where you gathered information concerning the market entry?
- Had you heard about the Network Statement?
    - If yes, did you use it?
    - Was it helpful?
    - Any information needed missing?
- Did you have rolling stock? How you organized it?
    - Where you purchased rolling stock and locomotives?
        - new / second-hand / leased
- Where you gathered the personnel?
    - Previous experience in railway operations
    - Qualifications
    - Training
- How you entered the markets? Were certain strategies used?
- Kindly describe the market entry barriers
- What kind of challenges or difficulties you faced when you entered the market? How the challenges were handled?
- What kind of positive matters you faced when you entered the market?
- Do you have collaboration with other passenger operators, especially with governmentally owned companies? International companies?
- What kind of expectations you had concerning the volumes? Have those been fulfilled?
- How you predict the passenger volumes? Is there any difference between summer / winter season, weekends / weekdays etc.?
- Can you influence on operated lines and available stations/stops?
- Is it possible to add frequency if demand increases / decreases?
- Has price level changed during the years?
- How invoicing is organized (contract type, gross/net)?
- Do you advertise? If yes, which advertisement types are used?
- Do various companies use your rolling stock as advertisement places? Which companies? How much your company can collect money based on this advertisement type?
- Is there difference between commuter and long-distance operations? If yes, what kind of differences? How you see the situation in future?

- Intramodal competition
- Intermodal competition
    - Is the competition mainly among time or costs or both?
- Do you think some improvements are needed? If yes, what kind of improvements?
- Future prospects

- Traction power: have you faced challenges to have electricity contract for other than diesel traction locomotives (if any)?
- Were you aware of the special characteristics of passenger rail market?
    - Surprises?

3. INFRASTRUCTURE

- Kindly describe the passenger rail market in the country
- Railway network charges
- Infrastructure's strengths & weaknesses
- Development ideas

4. COOPERATION WITH LABOR UNIONS

- Are you aware whether your employees belong to certain labor union?
- How actively your company's employees participate in labor unions' actions?
- Kindly name labor unions' positive and negative sides
- Development ideas to the labor unions

5. GOVERNMENTAL BODIES' ACTIONS

- Required documents, certificates etc.
- The role of governmental organizations in safety certificate and operating license + rolling stock approval + capacity allocation
- How easy it was to understand all needed actions?
- How well help was available?
- Kindly define the confronted strengths and weaknesses when dealing with governmental bodies?
- Objectivity / transparency of the passenger rail market
    - functionality of
        - ministry
        - infrastructure
        - market requisite
- Development ideas

6. EUROPEAN UNION

- What kind of challenges or possibilities EU regulations are creating?
- What kind of strengths & weaknesses you have noted in EU's actions?
- Development ideas

The semi-structured questionnaire / Authorities

1. BACKGROUND INFORMATION

- History & basic information
- Responsibilities
  ➔ Kindly describe how regulations etc. are accomplished
- Strengths, weaknesses, opportunities, threats
- Future challenges & possibilities

2. MARKET DEREGULATION / MARKET ENTRY

General questions

- Kindly describe the progress of deregulation in the passenger rail market
  - What have been the main challenges?
  - What have been the main positive surprises?
- How much you have collaboration with other countries' authorities?

Situation in Denmark/Sweden/Estonia

- Based on your experiences, how the situation in the passenger rail market has proceeded?
- What is the status of passenger rail market compared to other transport modes (bus, car, tram, metro)?
  - Copenhagen/Stockholm/Tallinn commuter traffic / long-distance traffic
  - Intramodal competition
  - Intermodal competition
  - Based on your experience, do operators have good relationships; are they cooperating?
- Future prospects

Danish/Swedish/Estonian passenger rail market: issues related to operators

- Kindly describe the process when an operator enters the passenger rail market
  - How well operators are aware of matters concerning market entry & special characteristics of passenger rail market? (Needed certificates etc.)
  - Is it easy for operators to enter the market?
  - Main challenges
  - Main market entry barriers
- Contract length
- What are the main factors affecting on train ticket prices?
  - According to your information, has the price level changed during the years?
- How passenger rail operators predict the passenger volumes? Are you aware is there any difference between summer / winter season, weekends / weekdays etc.?
- Can railway operators influence on operated lines and available stations/stops?
- Based on your experience, can passenger rail operators add frequency if demand increases / decreases?
- How invoicing is organized (contract type, gross/net)?
- Is there difference between commuter and long-distance operations? If yes, what kind of differences? How you see the situation in future?

3. INTERNATIONAL COOPERATION

- Kindly describe the international cooperation
- Kindly describe interoperability (challenges/positive matters)
- Main projects / future plans
- Overall challenges / positive sides in international cooperation

4. INFRASTRUCTURE

- Kindly describe the passenger rail market in the country
- Railway network charges
- Infrastructure's strengths & weaknesses
- Future & development ideas

5. COOPERATION WITH LABOUR UNIONS

- Are you aware whether the passenger rail companies' employees belong to certain labor unions?
- How actively companies' employees participate in labor unions' actions?
- Kindly name labor unions' positive and negative sides
- Development ideas to the labor unions

6. EUROPEAN UNION

- What kind of challenges or possibilities EU regulations are creating?
- What kind of strengths & weaknesses you have noted in EU's actions?
- Development ideas

Your overall opinion concerning the market deregulation

The semi-structured questionnaire / Labour unions

1. BASIC INFORMATION

- History
- Organizational chart
- Basic information about the members (amount, its development etc.)
- Kindly name the labour union's strengths and weaknesses
- What are the main challenges you are facing?
- Kindly describe what kind of services your labor union provides for passenger rail operators' employees
- What are your special characteristics; how you differentiate from other labour unions?
- Who are your main customers?
- Kindly describe your cooperation with the operators
- Kindly describe your cooperation with the governmental bodies. Positive / negative experiences?

2. THE LABOR UNION'S SERVICES

- What are the most / least used services?
- What are the challenges the employees are facing?
- What about the positive sides?
- What have been the most challenging matters when negotiating with the passenger rail operators?

3. MARKET ENVIRONMENT

- How satisfied the passenger rail market's employees are to their working conditions?
- Employees' salary level → are the private operators paying as much as the governmental operator? (vs. situation in Germany in October 2010)
- Are there employees available in the market?
- How the employees' education / training is organized?
- Have you noticed whether employees prefer to work for governmental or private operators?
- How well the operators have organized the rolling stock related issues?

4. DEREGULATION'S INFLUENCES ON PASSENGER RAIL MARKET

- How deregulation has changed the market?
- Based on your experiences, kindly name positive and negative influences
- What have been the main influences on public transport?
- Based on your experiences, how the employees have taken the deregulation and changes in the market?
- Are the operators treating their employees differently after the deregulation? If yes, how?
- Your overall opinion of market deregulation

HELINÄ Undersökning av kundbelåtenhet

Kod: _____

Vi är ett par studenter från Finland (Villmanstrands tekniska universitet) som gör en studie kring passagerare avseende järnvägstrafiken. Skulle du vara intresserad av att stödja denna studie genom att fylla i det här dokumentet. Som tack för hjälpen får du en Finsk sötsak. Tack för din hjälp!

1. I vilken grad passar de nedan nämnda egenskaperna den här tåglinjen?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

Chaufförens körsätt är angenämt och jämnt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Tågen kör punktligt enligt tidtabellen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Tågen är snygga och städade	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Det är bekvämt att resa (tågens inredning är bra)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

2. En helhetsbedömning av pendeltågstrafiken i Stockholm?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

En helhetsbedömning av pendeltågstrafiken i Stockholm?	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

3. I vilken grad passar de nedan nämnda egenskaperna på din tillfredsställelse?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

1. Den här tiden på dygnet brukar man kunna få sittplats på linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
2. Linjens tidtabell motsvarar mina resebehov på ett bra sätt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
3. Tågen är i tid	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
4. Resan går snabbt och smidigt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
5. Bra frekvens av tåg	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
6. Anslutningsmöjligheterna till andra kollektivtrafikmedel är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
7. Finns möjlighet att shoppa i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
8. Arbetsplats/skola ligger i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
9. Antal och mångfald på destinationer	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
10. Under mina resor brukar det inte förekomma ordningsstörningar	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
11. Förhållandena när man väntar på stationer är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
12. Att köpa biljett är enkelt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
13. Biljett pris	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
14. Informationen på stationerna är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
15. Informationen på tågen är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

16. Järnvägsvagnarna är nya	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
17. Extra tjänster är väl tillgängliga (Internet, radio, etc.)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

Vänligen ange de tre viktigaste faktorerna: _____

4. I vilken grad är följande funktioner praktiskt realiserade?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

1. Den här tiden på dygnet brukar man kunna få sittplats på linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
2. Linjens tidtabell motsvarar mina resebehov bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
3. Tågen är i tid	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
4. Resan går snabbt och smidigt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
5. Bra frekvens av tåg	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
6. Anslutningsmöjligheterna till andra kollektivtrafikmedel är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
7. Finns möjlighet att shoppa i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
8. Arbetsplats/skola ligger i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
9. Kvantitet och mångfald av destinationer	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
10. Under mina resor brukar det inte förekomma ordningsstörningar	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
11. Förhållandena när man väntar på stationer är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
12. Att köpa biljett är enkelt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
13. Biljett pris	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
14. Informationen på stationerna är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
15. Informationen på tågen är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
16. Järnvägsvagnarna är nya	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
17. Extra tjänster är väl tillgängliga (Internet, radio)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

5. Vilket transportsätt du föredrar att använda?

☐ Bil ☐ Buss ☐ Tåg ☐ Spårvagn ☐ Metro

Vänligen ange varför?

_____

6. Har du märkt om det finns flera operatörer som tillhandahåller transporttjänster?

☐ Nej

☐ Ja, vänligen nämna operatörerna _____

☐ Ingen åsikt

7. (Om du svarade ja) Skiljer följande faktorer mellan de olika operatörerna?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

Att köpa biljetter är lätt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Biljettkassan är ren och välorganiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Om det behövs, så finns personlig service tillgänglig	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

8. (Om du svarade ja) Finns det skillnader på linjer där flera operatörer agerar?

☐ Nej

☐ Ja, vilken typ av skillnader? _____

☐ Ingen åsikt

9. Enligt din åsikt, hur skulle det påverka situationen på marknaden om flera operatörer skulle komma in på marknaden?

☐ Positivt, vänligen precisera _____

☐ Negativt, vänligen precisera _____

☐ Ingen åsikt

10. Har avreglering förändrat marknaden?

☐ Nej

☐ Ja, vänligen precisera hur? _____

☐ Ingen åsikt

11. Har du använt transporttjänster från något av följande bolag:

SJ AB	□ Ja □ Nej
Stockholmståg KB	□ Ja □ Nej
A-Train AB (Arlanda Express)	□ Ja □ Nej
Veolia Tr. SV. AB	□ Ja □ Nej
Svenska Tågkompaniet	□ Ja □ Nej
Arriva Tåg AB	□ Ja □ Nej
Roslagståg AB	□ Ja □ Nej
Inlandsbanan AB (IBAB)	□ Ja □ Nej
DSBFirst Sverige AB	□ Ja □ Nej
Tågåkeriet / Tåg AB	□ Ja □ Nej
Ingen åsikt	□

Annat, vänligen precisera: _____

12. I vilken grad beskriver följande påståenden kollektivtrafikservicen i huvudstadsregionen? Bedöm de nedan nämnda påståendena.

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

Information om tågtrafikens tidtabeller och rutter finns väl till hands	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Biljettkontrollörerna beter sig artigt och sakligt	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

13. En helhetsbedömning för kollektivtrafiken i huvudstadsregionen

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

12. En helhetsbedömning för kollektivtrafiken i huvudstadsregionen	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

RESPONDENTENS BAKGRUNDSUPPGIFTER

Hur ofta åker Ni i genomsnitt med denna linje?

☐ Minst fyra dagar i veckan ☐ 2-3 dagar i veckan ☐ En dag i veckan ☐ Mindre ofta

Vilket betalningssätt använde Ni på denna resa?

☐ Periodbiljett laddat på resekortet ☐ Värde laddat på resekortet

☐ Engångsbiljett ☐ Annat

Kön:

☐ Kvinna ☐ Man

Födelseår: _____

Då Ni åker med denna tåglinje, är i allmänhet ...

☐ mer än hälften av sittplatserna lediga ☐ några sittplatser lediga

☐ inga sittplatser lediga ☐ många resenärer är tvungna att stå under resan

Skulle Ni kunnat använda bilen för denna resa?

☐ Ja ☐ Nej

När Ni tänker på denna resa, är den huvudsakligen en ...

☐ arbetsresa ☐ skolresa ☐ ärende/-uppköpresa ☐ fritidsresa

Vad beskriver Er nuvarande huvudsyssla bäst?

☐ Arbetare ☐ Tjänsteman ☐ I ledande ställning / entreprenör ☐ Sturerande/skolelev

☐ Hemmamamma/-pappa eller föräldraledig ☐ Pensionär ☐ Arbetslös ☐ Annat

Varifrån söker ni oftast information om tidtabeller? Välj ett av följande alternativ.

☐ Från tidtabellsboken (eller särtryckt tidtabell) ☐ Från internet

☐ Jag ringer trafikrådgivningen ☐ Från en papperstidtabell på stationen

☐ Från en elektronisk tidtabellsskärm på stationer

☐ Annanstans, varifrån? _____

☐ Jag söker/behöver inte information om tidtabeller

Var bor Ni?

_____

ROSOR OCH RIS ÅT TÅGBOLAGET

I det följande har Ni möjlighet att berätta Er åsikt om tåglinjen. Har Ni något speciellt positivt att säga om tågbolaget på denna linje och deras service?

_____

Har Ni något speciellt negativt att säga om denna linje och detta tågbolag, vilka förändringar skulle Ni önska på denna linje?

_____

HELINÄ Kliendi rahulolu küsimustik Vastates kood:_____

Tere päevast! Me oleme Soome tudengid (Lappeenranta Tehnikaülikoolist) ja me teeme uurimust reisijateveo raudteeliiklusest. Kas Te sooviksite uuringus osaleda täites küsimustiku? See võtab aega ainult mõne minuti. Tänutäheks saate Te Soome maiustust. Tänud aitamise eest!

1. Millises ulatuses järgnevad väited iseloomustavad vastavat raudteeliini?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

Rongijuhi juhtimisstiil on sujuv ja mugav	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rong püsib täpselt graafikus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongid on ülerahvastatud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongi varustus (istmed jne.) on mugavad	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

2. Teie üldhinnang lähiliini rongile Tallinn

Väga kehv = 1, Üsna kehv = 2, Ei hea ega halb = 3, Üsna hea = 4, Väga hea = 5, Ei oska öelda = 0

Teie üldhinnang lähiliini rongile Tallinn osas	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

3. Millises ulatuses mõjutavad Teie rahuolu järgnevad omadused?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

1. Vabade kohtade olemasolu vastaval liinil sel ajal päeval	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
2. Vastava liini graafik vastab hästi minu reisimise vajadustele	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
3. Rongid püsivad graafikus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
4. Reisimine on kiire ja sujuv	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
5. Rongide sagedus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
6. Ümberistumised ühistranspordi liinide vahel toimivad hästi	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
7. Ostukeskused asuvad liinide läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
8. Töökoht/kool asub liini läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
9. Sihtpunktide arv ja mitmekesisus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
10. Segajate puudumine / reisijate turvalisus on hästi	□ 1 □ 2 □ 3 □ 4 □ 5 □

hallatud	0
11. Ootetingimused peatustes on head	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
12. Pileti ostmine on kerge	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
13. Pileti hind	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
14. Informatsioon peatustes on hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
15. Informatsioon rongis on hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
16. Rongi veerem on uus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
17. Lisateenused on hästi kättesaadavad (internet, raadio)	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

Nimeta palun kolm kõige tähtsamat faktorit:_____

4. Millised ulatuses on järgnevad omadused praktikas realiseerunud?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

Vastaval liinil sel ajal päeval on vabu kohti	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Vastava liini graafik sobib hästi minu reisimise vajadustega	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongid on graafikus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Reisimine on kiire ja sujuv	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongide sagedus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Ümberistumine ühistranspordi liinide vahel toimib hästi	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Poodlemise võimalused asuvad liini läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Töökoht / kool on liini läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Sihtpunktide arvukus ja mitmekesisus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Puuduvad segajad / reisija tuvalisus on hallatud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Ootetingimused peatustes on head	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Pileti ostmine on lihtne	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Pileti hind	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Informatsioon peatustes on hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □

	0
Informatsioon rongis on hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Veerem on uus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Lisateenused on hästi kättesaadavad (Internet, raadio)	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

5. Millist transpordi moodust Te eelistate kasutada?

☐ Auto ☐ Buss ☐ Rong ☐ Tramm ☐ Troll

Palun määratlege miks? _____

6. Olete Te märganud kas raudteetranspordi teenust pakuvad mitmed operaatorid?

☐ Ei

☐ Jah, palun nimeta operaatorid _____

☐ Ei oska öelda

7. (Kui vastus on jah) Kas järgnevad faktorid eristuvad erinevate operaatorite vahel?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

Pileti ostmine on kerge	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Piletimüügikoht on puhas ja hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Vajadusel on individuaalne teenindus kättesaadav	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

8. (Kui vastus on jah) Kas esineb erinevusi liinide vahel mida opereerivad erinevad operaatorid?

☐ Ei

☐ Jah, millist laadi erinevusi? _____

☐ Ei oska öelda

9. Baseerudes oma arvamusele, kui turule tuleks erinevaid operaatoreid, kuidas see mõjutaks turuolukorda?

☐ Positiivselt, palun määratlege _____

☐ Negatiivselt, palun määratege _____

☐ Ei oska öelda

10. Kas raudteel vabaturu loomine on muutnud turgu?

☐ Ei

☐ Jah, kuidas? _____

☐ Ei oska öelda

11. Kas Te olete kasutanud transporditeenuseid järgneva operaatorfirma poolt:

Elektriraudtee	□ Jah □ Ei
Edelaraudtee	□ Jah □ Ei
Go Rail	□ Jah □ Ei
Ei oska öelda	□

12. Järgnevates küsimustes palun hinnake ühistransporti tervikuna XXX piirkonnas

Väga kehv = 1, Üsna kehv = 2, Ei hea ega halb = 3, Üsna hea = 4, Väga hea = 5, Ei oska öelda = 0

Informatsiooni kättesaadavus ajagraafiku ja liinide kohta on hea	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Piletikontrolöride töö on viisakas ja sobilik	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

13. Teie üldhinnang regionaalse ühistranspordi osas

Väga kehv = 1, Üsna kehv = 2, Ei hea ega halb = 3, Üsna hea = 4, Väga hea = 5, Ei oska öelda = 0

Teie üldhinnang regionaalse ühistranspordi osas	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

Taustainformatsioon

Kui tihti Te keskmiselt reisite vastaval liinil?

☐ Vähemalt neli päeva nädalas ☐ 2-3 päeva nädalas ☐ Üks päev nädalas ☐ Harvem

Millist tüüpi piletit Te kasutasite sellel reisil?

☐ Perioodi kart ☐ Ettemaksu kaart ☐ Üksikpiletit ☐ Midagi muud

Sugu:

☐ Naine ☐ Mees

Sünniaasta: _____

Kui Te tavaliselt reisite sellel liininl siis

☐ rohkem kui pooled on vabad ☐ mõned kohad on vabad ☐ vabu kohti ei ole

☐ paljud reisijad peavad püsti seistes reisima

Kas Teil on olnud võimalus kasutada autot samal reisil?

☐ Jah ☐ Ei

Mis on Teie reisi peaeesmärk?

☐ Tööga seonduv ☐ Kooli reis ☐ Poodlemine / igapäevatoimingud ☐ Vaba aeg/Puhkus

Milline järgnevatest kirjeldab Teie ametit kõige paremini?

☐ Tööline ☐ Spetsialist / ametnik ☐ Juht / ettevõtja ☐ Üliõpilane / koolipoiss või -tüdruk

☐ Koduperenaine / emadus- või isaduspuhkusel viibija ☐ Pensionär ☐ Töötu ☐ Muu

Kust Te ostite informatsiooni ajagraafikute kohta? Palun määratle üks järgnevatest.

☐ Trükitud ajagraafik raamatust ☐ Internetist ☐ Piletimüügipunktidest

☐ Peatustes olevatest pabervoldik ajagraafikutest ☐ Elektroonselt infotabloolt

☐ Kusagilt mujalt, palun määratle:_____

☐ Ma ei vaja / otsi informatsiooni ajagraafiku kohta

Elukoht:

_____

TAGASISIDE RAUDTEETRANSPORDI OPERAATORITE KOHTA

Järgnevalt olete Te teretulnud kirjeldama enda sõnadega mida Te arvate raudteetranspordi ja operaatorfirmade kohta. On seal teenuste osas midagi mille osas Te tahaksite operaatoreid tänada?

_____

Kas teenuste osas on midagi erilist mille osas Te ei ole rahul? Kas Te soovite liinide osas näha muudatusi?

_____

Company	City	Internet page
A-Train AB	Stockholm	www.arlandaexpress.com
Facket för Service och Kommunikation	Stockholm	www.seko.se
Fackförbundet ST	Stockholm	www.st.org
Roslagståg AB	Stockholm	www.roslagstag.se
Stockholmståg KB	Stockholm	www.stockholmstag.se
Storstockholms Lokaltrafik AB	Stockholm	www.sl.se
Svenska Tågkompaniet AB	Gävle	www.tagkompaniet.se
Svensk Lokförarförening	Stockholm	www.slff.nu
Trafikverket	Borlänge	www.trafikverket.se
Tågåkeriet i Bergslagen AB	Kristinehamn	www.tagakeriet.se

Appendix 9

Company	City	Internetpage
Arriva	Kastrup	www.arriva.dk/
Banedanmark	Copenhagen	www.bane.dk
City of Copenhagen, Technical and Environmental Administration	Copenhagen	www.kk.dk
DSBFirst	Copenhagen	www.dsbfirst.dk/
Dansk Jernbaneforbund	Copenhagen	www.djf.dk
DSB S-Tog	Copenhagen	www.dsb.dk/s-tog/
Fagligt Fælles Forbud (3F)	Copenhagen	www.3f.dk
HK Trafik & Jernbane	Copenhagen	www.hk.dk
Landsorganisationen i Danmark (LO)	Copenhagen	www.lo.dk
Lokalbanen	Hillerød	http://www.lokalbanen.dk/
Midtjyske Jernbaner		www.mjba.dk/
Nordjyske Jernbaner	Hjørring	www.njba.dk
Regionstog	Holbæk	www.regionstog.dk/
Trafikstyrelsen	Copenhagen	www.trafikstyrelsen.dk

Company	City	Internet page
City of Tallinn, Urban Planning Department	Tallinn	www.tallinn.ee
GoRail AS	Tallinn	www.gorail.ee
Edelaraudtee AS	Türi	www.edel.ee
Eesti Raudtee AS	Tallinn	www.evr.ee
Eesti Raudteelaste Ametiühing	Tallinn	www.evray.ee
Eesti Vedurimeeste Kutseliit	Tallinn	www.evkl.ee
Ministry of Economic Affairs and Communications, Road and Railways department	Tallinn	www.mkm.ee

Appendix 11

Participated exchange students from LUT

Adomako, Joshua
Ahi, Mohamadali
Cong, Kan
Gåsman, Elise-Maria
Jusas, Regimantas
Liang, Yi
Kesse, Martin
Molesworth, David
Oladepo, Olalekan
Otulugbu, Alexander
Samajauskaitė, Sonata
Timilsina, Udhyan
Toghyani Rizi, Amir
Vahtila, Ilari

Locomotive drivers, availability

Availability
Company educates drivers themselves.
2006 company was short of drivers and decided to train by themselves. Normally drivers come from other companies or state school.
Private companies are competing for the drivers. In order to get workforce, they must have better salary level, which is good for the workers.
It is quite common that people change from governmental operator to private companies.
In year 2000 was the first big tender on the Stockholm commuter trains and it was a total catastrophe: When the operations started they were lacking about 50 out of 230 Locomotive drivers.
Technicians and locomotive drivers are harder to find.
When private company entered the market, they borrowed workforce from governmental operator.
Today more locomotive drivers are available in the market than previously.
If needed, governmental operator lends locomotive drivers to private companies.
Today it takes 10 months to educate a locomotive driver. Companies must know beforehand when new drivers are needed, otherwise they face problems when old drivers become pensioners.
Private companies pay more than governmental operator; it is easier to get employees than in the beginning.

Locomotive drivers, salary level

Salary level
One challenge for unions is to get better salaries for the employees.
A constant demand of higher salaries leads to cutting of jobs.
There is a big variation between companies how much they pay.
Private companies pay better salaries for drivers and people working inside the trains than governmental operator.
The difference is not between operators but depends whether you work in passenger or freight market.
Before privatisation the salary level of same job was same for everyone.
Salary and working conditions are the most important factors.
Private companies pay more than governmental operators.
In freight sector the salary level is same, in passenger traffic it varies between operators.
Liberalization is affecting on the salary levels positively, e.g. drivers' and conductors', especially drivers' salary level has improved.
No difference, as there are national agreements. But often companies with fewer Union members have lower salaries.
Salary level difference between companies, there are some differences.
Employees are really satisfied with the salary level.
High salary level!

Locomotive drivers, benefits

Benefits
Lower benefits in companies with few union members.
Employees face cutting down of benefits.
Now when market is opened, there is pressure to decrease benefits in order to reduce costs and to be able to compete in the open market (either it is cutting benefits or losing jobs).
Pension system for the employees was better before when there was only one company. Before retirement age was 60, now it is 65 years.
Many locomotive drivers have worked their whole life in the same company. It is a benefit, because your coworkers are like your family!
Good working conditions

Advertising, organizing

Organizing
Company doesn't sell advertizing places at the moment, but it could be an idea for future.
Customer is responsible but they ask what operator wants to say.
Handled by two companies (Clear Channel and JCDecaux).
Without the revenue that advertizing gives public transport would become more expensive for the County Council and possibly also for the passengers.
In print, Internet, trains and stations. Company chooses advertisers that have something to do with culture or the environment.
Money received from the advertisements is very small and some campaigns are done together with the companies.
Advertizing in trains is only minimal. It only covers the accrued expenses.
Advertisments in the trains are just a by-product.
Mainly in own traffic systems like trains and busses, Web-pages and Metro (newspaper, free, daily); advertisement is not used as much in private companies.

Advertising, information value and other alliances

Information value	Other alliances
The only information type is traffic information. No adverts to increase volumes.	Operator is working closely with local festival organisers, companies and tourist offices and offers additional services.
New advertising boards will have adverts and traffic information.	Cooperation with university (students) to organize campaigns.
Provided information offers additional value to passengers.	
You cannot mix advertisment with traffic information.	

Background of the competitors, new small companies and old governmental companies

New small companies	**Old governmental companies**
What can be already seen with the small companies is a lot of movement into the market and out to the market.	Most of them are old monopoly operators so not that many totally new companies are entering the market.
Small companies come as subcontractors: Companies often have short life span and then they go away.	Government owned companies from other countries (Norway, Germany, Denmark and France) are acting in Sweden.
Companies are established via mergers on the grounds of small companies.	This is a new situation in Europe and a chance for big companies (like Deutsche Bahn) to test the market.
Current small private operators might merger together and conquer larger areas.	In few years time, governmental companies are expected to disappear from the markets.
	Old governmental companies are entering various markets.

Background of the competitors, motivation to enter a new market

Motivation
Money!
Entering new market.
There is a lot of investment money available so through that way new comers might appear to the markets.
To get tenders.
To enter the passenger rail market.

Local ticket as by-product, how organized, costs and who pays

How organized	Costs	Who pays
Two tickets together!	Depends on zones.	Passengers and region supports.
Same ticket can be used in several transport modes (metro, train, bus).	Ticket with one day of unlimeted use is supported by region (almost 50%)	
Local transport is included in train tickets.		

Maintenance, availability and actors

Availability	Actors
Earlier problem, due to the fact governmental operator owned all facilities.	International companies
Today maintenance services are well available.	Big manufactures also maintain/overhaul the rolling stock.
Private companies have either own maintenance halls or those are borrowed from governmental operator.	Before maintenance was done by the same national company that operated the traffic.
	Big state owned companies and private companies: Hong Kong operator MTR and Norwegian state railways maintenance company TBT, together bid for the tender on Stockholm Metro traffic.

Maintenance, own maintenance

Own maintenance
Own workshop refurbishes and maintains the rolling stock.
In early stage it was decided to buy also the maintenance.
Vehicles are owned by customer but maintained by the operator.
All operators are maintaining own rolling stock.

Labour unions, opinion concerning deregulation

Opinion concerning deregulation
Passenger traffic is subsidised and quite lot of the money comes from freight business. Lines are cut down when there is not enough freight for the lines.
It would be better if there would be only one operator.
Deregulation should not be done in the railway sector.
Operators are doing business but not providing services.
Some governmental agencies should remain as agencies instead of companies, some might be better to be formed as companies.
The benefits on the passenger side are difficult to see.
In Sweden there is a long history of deregulation, already in year 1990 regional authorities were given possibilities to put out tenders and rights to have regional traffic.
When you are on top of the ladder you probably benefit from deregulation but the lower you are it gets worse, e.g. cleaning sector.
I think the divided responsibility in the railway sector is the biggest problem. Everybody points to someone else when it comes to who's responsible.
Looking for the labour unions perspective for much worse, more capitalistic now.
In general we are against the deregulation, due to selling out of services.
We are not supporting the opinion everything was better before the deregulation.

Labour unions, working conditions of employees

Working conditions of employees
E.g. is it ok when there is just one person instead of two? It would be good to have a colleague as sometimes there is risk of safety, e.g. when transporting money in trains.
Working conditions have improved significantly during last years.
In general everything is pretty ok.
When it comes to working hours, splitting hours is the problem (some hours in the morning and some in the afternoon).
Difficulties in getting agreements with employers about working environment and working hours.

Labour unions, number of members in long term

Number of members in long term
Amount of members is decreasing as technology develops and less people are needed onboard. Lengthened maintenance intervals of trains also decreases the needed amount of employees.
The amount of employees in the railway sector is decreasing.
Amount of members has decreased.
Amount of members has halved.
Decreasing

Infrastructure, age and condition

Age & condition
Main problems are with the infrastructure (the switches).
Not enough heating in the switches during winter.
Technology costs but you have to accept it or otherwise you have to accept the delays of trains.
The maintenance of the infrastructure can be seen as a problem as it brings down the quality.
This is the most frequent area and money put into the maintenance per train or per passenger is much less than areas outside Stockholm.
The tunnel for commuter train (2017) is a very good new solution.
Better quality of tracks and less disturbances.
The condition of tracks is improving quickly.
Costs for the maintenance and re-investments of the tracks is about 15% that the railway undertakings and local authorities pay, so the taxpayers are responsible for most of the costs.
There has been a lot of investments on the infrastructure but still some lines are in bad shape and need investments.
There is part where one has to travel only 40 or 25 km/h.
Infrastructure is really old, which creates problems.
Great problems with signalling system; however, it will be updated soon!
New development plans will update the infrastructure.
Main problems in rail market are due to old infrastructure.
Infrastructure is in really bad condition.

Infrastructure, speed and diesel vs. Electricity

Speed	**Diesel vs. electricity**
When the speed will be 120 km/h then trains can compete with cars and more volumes are expected.	When bought diesel locomotives you can use it in the whole network and the risk is then smaller.
After the speed 120 km /h is achieved, next goal is 140 or 160 km/h.	Only the most important part of network is electrified, diesel locomotives are need to be used in other locations.
Once infrastructure's overall condition is improved, the possible speed will increase as well.	A great amount of diesel locomotives are ordered, no interest to increase the length of electrified network.
New developement plans will increase the speed and also the transit time.	

Cooperation, with operators

With operators
There is too little cooperation between different actors (traffic people, technical people and the economists).
There is both competition and cooperation, it is not known yet whether the cooperation will go for worse when opening the market. It can also happen that companies realize that they are competitors but they also need to cooperate.
Mainly in the county with companies that are operating bus lines.
In the future it is possible to have more companies and then it is not that easy to discuss. It might cause problems and put the passenger in the middle.
Some cooperation, close connections.
Cooperation is compulsory, due to nature of the contract! However, generally it is good.

Cooperation, with governmental authorities and unions

With governmental authorities	With unions
In regulars basis meetings with Transportstyrelsen: It is working well.	Good thing is the representatives who tell things to their colleagues.
Cooperation between governmental authorities is problematic: Decision making should be more concentrated.	There are 5 unions whom company has to negotiate and some are very political and in the left wing.
Personally they have been helpful and not very picky, no reason to complain or be mean to them.	Cooperation (union & operator) is mainly discussion about contracts and the working environment and how to improve them.
Good relationships.	Good cooperation with all unions.
Really good cooperation, several meetings annually.	
Excellent, better than with other counterparts.	
Mostly contacts with Trafikverket because they own the tracks.	
With Ministry of communications and economics: It is mainly positive.	

Operating contract type, gross/net and duration of contract

Gross/Nett	**Duration of contract**
Net contract.	5 years + 5 year option.
Incentive contract.	10 year contract.
Gross contract with operators.	5 year contract.
Gross contract with customer/buyer.	Depends on the operator (8+2 years, 7+2 years etc.).
Gross, company doesn't get paid by the revenue of passengers.	
More focus for having incentives (better quality, more passengers) in contracts.	
Income comes from tickets and rest from the state, governmental support is decided on the annual basis.	

Operating contract type, volume of passengers per year

Volume of passengers per year
50 % increase during last 10 years. Strongest increase is around Stockholm, Gothenburg and Malmö.
Predictions are based on the history and little plus over it every year.
There has been slight increase every year in the volume of passengers.
No expectation for so high volumes in rails than in Soviet times.
Volume of passengers has increased.
Operator has been able to increase the annual volumes, although normal trend in the area is vice versa.
Economic recession increased the passenger volumes.
Passenger rail transport volumes have increased during the last years.

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